

# DOCUMENT RESUME

ED 052 583

EC 032 848

AUTHOR Mintz, Raymond D.; And Others  
TITLE Study of the Need for Educational Manpower for Handicapped Children and Youth: Part A - Phase III. Final Report.  
INSTITUTION Operations Research, Inc., Silver Spring, Md.  
SPONS AGENCY Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.  
REPORT NO TR-602  
BUREAU NO BR-8-9028  
PUB DATE May 70  
CONTRACT OEC-0-9-08928-0710  
NOTE 377p.  
EDRS PRICE EDRS Price MF-\$0.65 HC-\$13.16  
DESCRIPTORS \*Exceptional Child Research, Handicapped Children, \*Information Systems, Information Utilization, \*Manpower Needs, \*Models, National Surveys, \*State Surveys, Statistical Data  
IDENTIFIERS Manpower Requirements Projection Model

## ABSTRACT

Phase III of the Study of the Need for Educational Manpower for Handicapped Children and Youth, in demonstrating the feasibility of the Manpower Requirements Projection Model (MRPM), gathered data in the states necessary for implementation of the model. The MRPM was developed to enable state or local administrators of special education to estimate manpower needs and handicapped child population. The 50 state special education agencies were surveyed concerning the flow and utilization of special education information and their capability to utilize the model. It was found that few states had special education information systems capable of providing predictive as well as evaluative data, and in few states did data on handicapped children include all sources of education. It was concluded that, despite some obstacles to automating special education data processing, almost all states had the capability to utilize the MRPM and it could be operational in two to three annual data cycles in most cases; availability of information flow capable of providing required input was a major factor affecting implementation. Appended are extensive state data summaries (personnel data and special education enrollment) and information flow implementation and maintenance cost estimates for each state. (EC 032 847 and ED 032 849-EC 032 852 contain related information.) (KW)

# ORI

Operations Research, Inc. A Subsidiary of Leasco Systems Corporation

The research reported herein was performed pursuant to Contract No. OEC 0-9-08928-0710 with the Bureau of Education for the Handicapped, Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. The points of view or opinions stated do not, therefore, necessarily represent official Bureau position or policy.

ED052583

U.S. DEPARTMENT OF HEALTH, EDUCATION  
& WELFARE

OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED  
EXACTLY AS RECEIVED FROM THE PERSON OR  
ORGANIZATION ORIGINATING IT. POINTS OF  
VIEW OR OPINIONS STATED DO NOT NECES-  
SARILY REPRESENT OFFICIAL OFFICE OF EDU-  
CATION POSITION OR POLICY.

# **OPERATIONS RESEARCH, Inc.**

SILVER SPRING, MARYLAND

## **STUDY OF THE NEED FOR EDUCATIONAL MANPOWER FOR HANDICAPPED CHILDREN AND YOUTH— PHASE III REPORT**

### **PART A—PHASE III FINAL REPORT**

**1 May 1970**

**Prepared under Contract No. OEC O-9-08928-0710  
for the Bureau of Education for the Handicapped,  
Office of Education, U.S. Department of Health, Education, and Welfare**

## PREFACE

The "Study of the Need for Educational Manpower for Handicapped Children and Youth--Phase III Report" has been organized so that appropriate parts of it may be conveniently distributed to those most immediately concerned with the content of each part. The general content of each part is as follows:

- Part A, Phase III Final Report, contains the overall report on the Manpower Requirements Projection Model (MRPM) validation efforts and the activities, findings, and conclusions of the state survey. Its appendices also contain implementation cost estimates and summaries of the enrollment and employment data collected during the state survey.
- Part B, Special Education Staff Users' Guide, contains both the general and the detailed guidance necessary for non-technical oriented personnel for understanding and implementation of the MRPM.
- Part C, Manpower Requirements Projection Model--Technical Documentation of the Computer Program, which is written for the technically oriented user of the MRPM, provides the technical details necessary for understanding the model formulations and computer programs.
- Part D, State Analysis Reports, includes individual reports on each state's special education information flow.

Parts B and C are bound together in one volume; Part D is divided into three volumes for ease in handling.

## ACKNOWLEDGMENTS

The project team wishes to express its appreciation to Dr. James J. Gallagher, Dr. Michael Marge, and Dr. Edwin W. Martin for their valuable guidance and assistance in the performance of this study. Special thanks are offered to Dr. Leonard J. Lucito, who served as project officer.

Additional appreciation is extended to the following members of the Bureau's Research Advisory Group for their cooperation and assistance:

Paul Ackerman  
Bertram Mogin  
Dr. James Moss  
Lee Moss  
Bertram Weiner  
Dr. Frank B. Withrow.

The project team for Operations Research, Inc., included:

R. D. Mintz, Program Director, who was responsible for the overall technical direction and management of the project team;

C. M. Koch, Project Manager, who was responsible for the day-to-day direction of the project team, and who participated in the state survey analysis and co-author of the Phase III Report;

B. A. Johns, Assistant Project Manager, who was responsible for the design of the Manpower Requirements Projection Model, participated in the state survey analysis, and co-authored the Phase III Report; and

M. W. Brown, T. R. Jungreis, J. E. Kelly, J. J. Koshel, J. O'Donnell, and J. Peterson, state survey analysts.

## SUMMARY

### BACKGROUND

Under the auspices of the U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Education for the Handicapped, a three-phase study was initiated by Operations Research, Inc. (ORI), to develop an operational model that would permit organized consideration of the factors affecting the requirements for special education manpower, make a projection of these requirements, and, through a comparison with the supply potential, determine the manpower gap. This information could then be used as a basis for establishing programs to relieve the special education manpower shortage. The model would be made available to each of the states for voluntary application.

In Phase I of this study, the tentative model for estimating manpower requirements was formulated. Phase II objectives included the definition of operational methods, based on a pilot survey of data availability, and the definition of data objectives and collection strategies to be used in the 50-state survey.<sup>1/</sup>

Analysis of the results of the five-state pilot survey performed in Phase II indicated that few of the data elements required by the Manpower Requirements Projection Model (MRPM) were available at the state level in the necessary level of detail; that many of the required data elements were available at the local level but were not being transmitted to the state level; and, finally,

---

<sup>1/</sup> Detailed descriptions of the work performed in Phases I and II are provided in ORI Technical Report 593, Study of the Need for Educational Manpower for Handicapped Children and Youth-Phase I Report, 13 December 1968, and ORI Technical Memorandum 126-69, Study of the Need for Educational Manpower for Handicapped Children and Youth-Phase II Report, 4 June 1969.

that in some states many of the required data elements, although presently unavailable, could be developed.

As a result of the unavailability of satisfactory sets of data, it was not possible to conduct a practical model test utilizing state-level data. It also became apparent that the objectives of Phase III would have to include not only the collection of handicapped child population and special education employment data currently available in each state but also an assessment of the capabilities of the individual states to utilize the model. This assessment would include an analysis of existing information flow processes to provide the necessary model input data, a review of the capability of existing automatic data processing equipment for processing the needed information and running the model itself, and an assessment of the state's special education staff's capability to utilize the model.

Furthermore, it was determined that Phase III would provide BEH with guidance regarding the resource requirements for the development of an information system, at the state level, capable of supporting model requirements. It was apparent that model feasibility testing would have to be conducted on a local level, where data not already available could be extracted from records with a minimum of difficulty.

Thus, from the Phase I development of tentative models and the Phase II exposure to the practicalities of application, the objectives and activities necessary for Phase III were evolved.

This summary contains an overview of the results of the activities undertaken in Phase III to accomplish the stated objectives. It includes a brief review of the model validation procedure, a discussion of the major survey concerning the flow and utilization of special education information, and a review of the general conclusions that were reached as a result of the analysis of the survey findings.

#### MODEL DEMONSTRATION AND VALIDATION

When it became apparent that the data necessary to demonstrate the model would not be available at the state level, it was decided to simulate a state condition by substituting a special school district having a large handicapped child population, a variety of special education programs, and at least 4 or 5 years of historical records. The test procedure used to determine the validity of the projections involved the collection of the required data elements from the historic files, input of the data into the model, operation of the model to provide manpower projections, and comparison of these computed projections with the actual employment records.



The model demonstration proved that collection of the data required by the model is feasible and that, when the necessary data is provided as input, the computer programs are operational. The mathematical relationships established within the model were also proven to be valid.

## **SURVEY FINDINGS**

In surveying the 50-state special education agencies, a great variety was found in those administrative facets of handicapped child education that affect the flow and utilization of special education information. The major variables that were found to affect the model application potential are outlined briefly below:

- Distribution of responsibility for the education of handicapped children
- Organization of state special education agencies
- Level of data currently available at state special education agencies
- Need for additional special education data
- Attitude toward model application
- Legislative, geographic, and fiscal factors
- Existing information flow characteristics
- Availability of data elements needed for MRPM application
- Availability of data processing resources.

Each state has its own special education "personality," made up of variations in the foregoing characteristics. The findings and recommendations as they specifically concern each state are presented in detail in the State Analysis Reports contained in Part D of this Phase III Report. The broad scope of these variables as they affect the considerations of this study are briefly discussed in the subsequent paragraphs.

### **Distribution of Responsibility for the Education of Handicapped Children**

Responsibility within the state for the education of handicapped children almost never rests with one state agency alone; other state agencies besides the education departments have a portion of the responsibility. The reasons for the dispersion of responsibility include jurisdictional assignments resulting from services being provided by multiple sources, functional assignments established by the organization of state services, specialization of services in state institutions, and the services of private facilities. Each additional agency, autonomous institution, and private facility adds to the complexity of the information flow by requiring additional coordination and adding to the number of sources from which data must be collected.

### Organization of State Special Education Agencies

The state special education agency (or its equivalent) will be the focal point of the special education information system and the prime mover in the implementation of the MRPM. Therefore, its function in the state educational hierarchy, its strengths, and its weaknesses will have important bearing on the potential for MRPM use.

The functions of special education agencies vary widely from state to state. The range of legislated responsibilities runs from practically no responsibility to rather complete control of the state's education effort for handicapped children. Agencies may—

- a. Oversee distribution of funds, exercising only enough control to obtain information upon which to base fund disbursements
- b. Provide guidance to local education agencies for the formulation and development of special education programs
- c. Enforce state special education regulations pertaining to diagnosis, establishment of classes, approval of curricular content, teacher approval, and individual child applicant approval.

The organizational level of the special education agency within the state department of education varies considerably. In some states, the director of special education is directly responsible to the superintendent of education (or his equivalent) and in other states he may be several levels removed. The ability to influence information flow from local school districts and other concerned agencies is frequently affected by the special education agency's organizational position.

The special education intra-agency organizations also exhibit a variety of structures that can affect model application. In some states, communications and information flow within the agency are excellent, but there are also complex agencies where coordination between staff members is minimal or nonexistent.

### Level of Data Available at State Special Education Agencies

The effects of the type of organization and functions of a state special education agency frequently have a direct bearing on the information flow and consequently on the type of data to which the agency has access. The following examples summarize the different levels of data found to exist at various state special education agencies:

- Sufficient to support financial disbursement only
- Sufficient only to satisfy the requirements to qualify for Federal assistance

- Sufficient to satisfy the specific needs of only a portion of the special education programs
- Sufficient for a specific purpose, possibly to reinforce some request of the legislature
- Sufficient to provide statistics for annual reports.

It was found in many states, however, that although the current level of data detail at the state level could not support the model, only minor modifications to an already existing information flow would be required to provide data sufficient for initial model implementation.

#### Need for Additional Special Education Data

Many of the state special education directors were very much aware of the inadequacy of the information available to them. In general, they need additional data to document services provided, to analyze the status and effectiveness of their present programs, and to plan for both the near-future level of activity and programs requiring a long range development. The directors recognized that the implementation of the MRPM would provide them not only with a manpower projection capability but also with many of the data elements they require to satisfy their other management needs. As a result, the requirement for data collection for model application purposes could provide the impetus to initiate improved data collection procedures in many states.

#### Attitude Toward Model Application

In most cases the state special education agency directors felt that the basic data elements required for model implementation would be useful for operational analysis; however, there was not universal agreement that all the data elements were always applicable. Where the full concept of the model potential was well understood, a definite interest in utilization of the model was exhibited.

#### Legislative, Geographic, and Fiscal Factors

It has already been mentioned that each state has its own characteristics that make it at least a little different from its sister states. This uniqueness becomes quite evident in the area of handicapped child education in the varying definitions of handicapping conditions, the difference in the number of handicapped areas served, the changes in fiscal attitudes toward special education, the variety of enabling legislation, the differences in state and local sponsorship of special education, the problems of population density/dispersion, and the availability of special education manpower. The MRPM has the flexibility to incorporate these unique characteristics in its application, but the state's special education information flow must also be capable of considering the influence of those factors.

### Existing Information Flow Characteristics

Every state has some type of information flow from which the special education staff can extract data pertinent to its function. However, the characteristics of the existing flow certainly affect the content, utility, and efficiency of the information system. Among the elements to be considered and influenced by special education if it wants improved information flow are:

- The purpose of the system, i.e., to serve central education or special education
- The basic information flow patterns, i.e., flow from local education agency to state special education agency
- The variety of forms in use and their adaptability for conversion of data for automated processing
- The degree of automation
- Reporting time period variations.

The incorporation of data elements into existing systems at the state level was often not the result of a preconceived information system design, but rather the result of building on information already available, or the cumulative result of special information requirements. Frequently, information systems were designed to incorporate existing characteristics rather than modify the conditions to improve the flow.

### Availability of MRPM Data Elements

The full utilization of the Manpower Requirements Projection Model requires that certain data elements be available for input to the Model program. Often, data elements required are at a level of detail below that which is currently available at the state special education agency. However, the model is designed to provide a framework for the systematic consideration of all of the factors which may affect special education manpower requirements. In this respect, it is more sophisticated than other projection techniques and will provide more accurate projection results. The orderly and logical consideration of all those factors therefore requires a more detailed level of input, which is frequently useful for many other management applications also.

The following paragraphs briefly discuss the required data elements and the condition of their availability as found in the state special education agencies during the state survey visits.

Children Identified as Needing Special Education. The enrolled children are almost always accounted for, in one way or another, at the state level. However, to be usable by the MRPM, enrollment data must be broken down by age, handicapping conditions, and by education program. Enrollment

data by handicap group was usually available, but further delineation (when it did exist) was generally by education level, e.g., elementary, primary, intermediate, secondary, or high school, and not by individual year of age.

Records pertaining to those children identified and waiting to be enrolled were scarce at state level and, when available, were usually uncompiled and incomplete.

Unidentified Handicapped Child Population. In the absence of comprehensive diagnostic capability, most states use prevalence rates to estimate the number of children in each category of each handicapping condition. Although a few states use rates based on special studies, most states use the national prevalence rates or modifications of national rates.

Mobility of Special Education Population. The size of the identified handicapped child population in a state is altered by the addition of new children, including new enrollees and incoming interstate transfers, and by attritions (graduations, dropouts, outgoing interstate transfers, death, etc.) that deduct from the total population. The availability of data pertaining to these mobility factors was usually not satisfactory for MRPM purposes.

Special Education Simulation Variables. Educational program mix trends form one of the data elements useful in the projection of manpower requirements, because their variation can affect manpower requirements. The state survey indicated that historical records usually contain sufficient data to enable special education consultants or staff to plot an interpretation of trends in program mix.

Other simulative data elements include personnel types and personnel/pupil contact ratios. Personnel types were identifiable, because almost all states required that direct contact personnel have some special qualifications unique to the handicapped area to be served. Personnel/pupil contact ratios for the state's public school system are almost always formally regulated.

Yearly Projections of General Child Population By Age. Many states had population projections or statistics that could be utilized in the preparation of annual population projections by single year of age, for the period for which the projections were desired.

Special Education Personnel Supply. The basic data was usually found to be available within the state special education office, and, although it was rarely summarized and totaled by area of specialization, it could generally be summarized with a little manual tabulation.

#### Availability of Data Processing Resources

The resources necessary for the implementation and application of the Manpower Requirements Projection Model include both manpower skills and data processing hardware capability. The availability and adequacy of both varied widely among the 50 states.

Manpower. Talent with the required capability to implement the information flow necessary to support the MRPM was rarely found within the existing special education staffs, because these skills are not indigenous to normal special education operations. Within almost every state government, however, there is an organization with the necessary types of personnel skills.

Hardware. The capacity required of the available computer hardware falls into two categories: capacity to process an information system, and capacity to process the Manpower Requirements Projection Model. Most state education agencies theoretically have the hardware capability, or access to it through other agencies or universities, to process an information system.

The hardware capability requirements for the model generally exceed those of an information system, primarily because of the need for additional word storage capacity. A large majority of the states already have sufficient computer capability to run the MRPM program.

## SURVEY CONCLUSIONS

During the state visits, the analysts performed those data collection and analytical functions that were necessary to the accomplishment of the project objectives. In each case recommendations for actions necessary to the implementation of the MRPM were prepared; these are provided in the State Analysis Reports, Part D of this Report. The conclusions derived as a result of the survey are summarized, in terms of project objectives, in subsequent paragraphs.

An effort was made to collect from the state special education agencies data that could be used to calculate current special education manpower requirements. Incomplete data collections occurred in many instances, because of the total non-availability of certain data, over-aggregation of data, or partial availability of data. Due to the inconsistent availability of data, the resultant calculations cannot be relied upon for an evaluation of current special education manpower requirements.

This data collection effort was most useful in the analysis of existing special education information flows, because, as the data were obtained, the source and flow were frequently revealed. The conclusions regarding the status of existing special education information flows at state level are summarized as follows:

- Few states have special education information systems that are capable of providing management-type information; i.e., data that has predictive as well as evaluative applicability. The need for additional data is quite evident. A major upgrading of the information flows within almost all states is indicated. To accomplish this objective, changes will have to be made by the



states—major in some, and relatively minor in others. The first step in upgrading the information available to special education administrators is to provide the agencies with an understanding of what types of information can be made available, how to obtain it, and how to use it. The recommendations contained in the individual State Analysis Reports should be of further assistance in attaining this understanding.

- In very few of the states is the data pertaining to handicapped children inclusive of all of the sources of handicapped child education—public schools, state schools and institutions, and private facilities. Usually, each agency maintains its own records. Such limited information would defeat the objective of the MRPM to project special education manpower requirements for the state's total handicapped child population.

It must be stressed that interagency cooperation and communication are absolutely essential to the establishment of a common handicapped child data base that will be representative of the state's total service requirements and responsive to each agency's information needs. Further, in some states, the special education agency's internal coordination and communication must be strengthened. Standardization of forms, data elements, data collection cycles, and timetables is a prerequisite to internal data flow stabilization.

Liaison between state level and local special education personnel is also essential to the establishment of an information flow. The greater the involvement of the state agency with the local agency, the better the information flow. A corollary benefit to greater involvement is the improved capability of state personnel to analyze and utilize the information collected.

The vast majority of states cannot easily obtain the information they need without benefit of ADP techniques. The manual operations are too time consuming for an already understaffed agency. The state survey analysis included an evaluation of the capability and availability of the existing data processing equipment for use in processing special education data and for MRPM application.

Most of the states have within their government organizations computer hardware capable of performing the required processing for both the information flow and MRPM application, but this capability is frequently not

accessible to the special education agency. Although computer availability is a problem in many states, analysis reveals that the relatively limited application of automated data processing (ADP) techniques to the special education information systems is more the result of a combination of other constraints. The lack of appreciation for the potential availability of additional information through the application of ADP, and a limited understanding of how to initiate and apply ADP techniques, are major obstacles to automating special education data processing.

Another objective of the state survey was to evaluate the capability of state special education staffs to utilize MRPM capabilities. From discussions with, and observations of, the state special education staffs, it was concluded that almost all have the capability to utilize the model. However, the data to support the model must be developed, and in this respect some additional understanding is required by the special education community.

The improvement of information flow and data reliability means the acceptance by special education agencies, both at state and local levels, of the fact that each data source and each data element is an integral part of the overall system. Increased data availability need not always require increased work in data collection. Frequently, coordinated and systematic data collection will require no increase in effort over that already being expended but will yield much additional information.

Conclusions about the potential for application of the Manpower Requirements Projection Model are summarized in the following brief statements:

- The model is much needed.
- The concept has been favorably received.
- Some surmountable problems will be encountered in creating the necessary information flow.
- There should be no serious constraints because of computer capacity limitations.
- Once the implementation decision has been made by the state, the MRPM could be operational in two to three annual data cycles in most states.

Acceptance of the model concept and its potential for application is based upon the utility of various aspects of the model. Because the model has several capabilities, it has an appeal for various types of users and thus has a greater potential for application. The advantages of using a model to assist in the development of plans are these:

- a. When planners can see the implications of major decisions, they can spot potential problem areas and discover opportunities for remedial or preventative action.



- b. By comparing past performance with alternative courses of action, a repetition of past mistakes can be avoided.
- c. By applying long-range planning, special education personnel can cast a longer look ahead, with freedom to examine hypothetical solutions before decision time becomes critical.
- d. By providing the means for the rapid generation of revised plans, new directions can be quickly derived to meet unforeseen contingencies.

The model concept has been tested and is feasible. However, the major considerations affecting model implementation are the availability of an information flow capable of providing the required input and availability of hardware. Most of the data elements can be incorporated in the existing information flows in all but a few of the states, so that data should be available for implementation of the MRPM in from two to three annual data cycles, once the decision is made by each state to go forward. In most states the required hardware is available, and the small usage time required for model application should not cause much difficulty in obtaining the required computer usage time.

#### FURTHER FEDERAL ACTION

Many state agencies need encouragement in the form of incentive and leadership. The MRPM is a form of incentive in that, by providing the state agencies with management tools, it can help them to do their jobs better. The Phase III state visits provided initial leadership in many states by laying the groundwork for improving the information flow and creating a desire for better data. The impetus that has been gained as a result of this effort should be supplemented and supported by continued Federal sponsorship of programs to assist the states with the development of their information systems.

## TABLE OF CONTENTS

	Page
PREFACE . . . . .	i
ACKNOWLEDGMENTS . . . . .	iii
SUMMARY . . . . .	v
LIST OF FIGURES . . . . .	xxi
LIST OF TABLES . . . . .	xxiii
I. INTRODUCTION . . . . .	A-1
BACKGROUND . . . . .	A-1
PURPOSE OF THE REPORT . . . . .	A-2
ORGANIZATION OF THE REPORT . . . . .	A-3
II. PHASE III STUDY OBJECTIVES . . . . .	A-5
INTRODUCTION . . . . .	A-5
SPECIFIED OBJECTIVES . . . . .	A-5
ADDITIONAL REQUIREMENTS . . . . .	A-6
ACCOMPLISHMENT OF OBJECTIVES . . . . .	A-6
III. LIMITATIONS . . . . .	A-7
INTRODUCTION . . . . .	A-7
LIMITATIONS . . . . .	A-7

	Availability of Data at the State Level; Complexity of Handicapped Child Education Responsibilities; Availability of State Personnel; Length of Time for the State Visit	
	CONCLUSION . . . . .	A-9
IV.	FINDINGS AND CONCLUSIONS. . . . .	A-11
	INTRODUCTION . . . . .	A-11
	MODEL DEMONSTRATION AND VALIDATION . . . . .	A-11
	SURVEY FINDINGS . . . . .	A-12
	Distribution of Responsibility for the Education of Handicapped Children; Types of State Special Education Or- ganizations; Level of Data Available at State Special Education Agencies; Need for Special Education Data; At- titude Toward Model Application; Legislative, Geographic, and Fiscal Factors; Existing Information Flow Characteristics; Availability of MRPM Data Elements; Availability of Data Processing Resources	
	SURVEY CONCLUSIONS . . . . .	A-29
	Status of Special Education Informa- tion Flow of State Levels; Degree of Federal Involvement; Manpower Re- quirements Projection Model Applica- tion Potential; Current Implementation Status; Cost Estimates for Information Flow Implementation and Maintenance	
V.	DESCRIPTION OF STUDY ACTIVITIES . . . . .	A-39
	INTRODUCTION . . . . .	A-39
	TASK 1 — REVIEW OF INFORMATION REQUIREMENTS . . . . .	A-39
	Objective; Procedure; Results	
	TASK 2 — QUESTIONNAIRE MODIFICATION . . . . .	A-40
	Objective; Procedure; Results	

TASK 3 — MODEL DEMONSTRATION . . . . .	A-41
Objectives; Procedures; Results	
TASK 4 — DEVELOP FORMAT FOR ANALYSIS STATE DATA DEVELOPMENT POTENTIAL . . . . .	A-51
Objectives; Procedures; Results	
TASK 5 — SCHEDULE AND ARRANGE ON-SITE VISITS . . . . .	A-53
Objective; Procedure; Results	
TASK 6 — CONDUCT ON-SITE VISITS TO STATE SPECIAL EDUCATION AGENCIES . . . . .	A-55
Objective; Procedure; Results	
TASK 7 — PREPARE STATE ANALYSES . . . . .	A-59
Objective; Procedure; Results	
TASK 8 — ESTIMATE STATE REQUIREMENTS . . . . .	A-61
Objective; Procedure; Results	
TASK 9 — ESTIMATE MANPOWER SUPPLIES . . . . .	A-62
Objective; Procedure; Results	
TASK 10 — DEVELOP REQUIREMENTS AND METHODS FOR STATE REPORTING OF MODEL RESULTS . . . . .	A-62
Objectives; Procedure; Results	
TASK 11 — ESTIMATE TEACHER TRAINER REQUIREMENTS . . . . .	A-63
Objective; Procedure; Results	
TASK 12 — ESTIMATE RESEARCH REQUIREMENTS . . . . .	A-64
Objective; Procedure; Results	
VOLUNTARY TASKS . . . . .	A-64
Objective; Procedure; Results	
VI. RECOMMENDED FURTHER ACTIONS . . . . .	A-69
IMPLEMENTATION OF THE MANPOWER REQUIRE- MENT PROJECTION MODEL . . . . .	A-69
State Implementation Demonstration; Regional Implementation Workshops; BEH Support of State Activities	

SUGGESTED FURTHER RESEARCH . . . . .	A-72
--------------------------------------	------

Generalized Special Education Information Systems; Develop of a Manpower Supply Model; Development of Diagnostic Capabilities

APPENDIX 1: STATE DATA SUMMARIES . . . . .	1-1
--	-----

APPENDIX 2: COST ESTIMATES FOR IMPLEMENTATION AND MAINTENANCE OF INFORMATION FLOW . . . . .	2-1
---	-----

## LIST OF FIGURES

	Page
1. Target Group Population . . . . .	A-44
2. General Child Population Information. . . . .	A-45
3. Projected Personnel Input Proportions . . . . .	A-46
4. Projected Manpower Requirements . . . . .	A-48
5. Procedure for Analysis of Status and Development of a Data Element . . . . .	A-54

## LIST OF TABLES

		Page
1.	Demonstration of Validity of Projections Made by the Manpower Requirements Projection Model; Comparison of 1968-69 Manpower Requirements— Projected vs Actual . . . . .	A-13
2.	Estimated Time Frame for MRPM Implementation . . . . .	A-34
3.	Estimated Cost Summary for Special Education Data Development and Manpower Requirements Projection Model Application at State Level . . . . .	A-37
4.	Comparison of 1968-69 Group Populations— Projected vs Actual . . . . .	A-49
5.	Comparison of 1968-69 Manpower Requirements Based on Projected Actual vs Projected Desired Personnel/Pupil Contacts . . . . .	A-50
Appendix 1 Tables: State Data Summaries for Each of the 50 States		
Appendix 2 Tables: Cost Estimate for Special Education Data Development and MRPM Application at State Level for Each of the 50 States		

## I. INTRODUCTION

### BACKGROUND

1.1 Under the auspices of the U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Education for the Handicapped, a study was initiated to investigate possible approaches to the development of a methodology that would assist in the determination of future special education manpower requirements. The objectives were to obtain an operational model that would permit organized consideration of the factors affecting the requirements for special education manpower, make a projection of these requirements and, through a comparison with the supply potential, determine the manpower gap. This information could then be used as a basis for establishing programs to relieve the special education manpower shortage. The model would be made available to each of the states for voluntary application.

1.2 In Phase I of this study the working definitions of key variables were developed and tentative models for estimating manpower requirements and supplies were formulated. Phase II objectives included the definition of operational methods based on a pilot survey of data availability, and the definition of data objectives and collection strategies to be used in the 50-state survey.

1.3 Analysis of the results of the five-state pilot survey indicated that few of the data elements were available at the state level in the detail required to fully utilize the Manpower Requirements Projection Model (MRPM) capability; that many of the data elements were available at the local level but were not being transmitted to the state level; and that some of the required data elements were unavailable in some states but could be developed.



1.4 As a result of the unavailability of satisfactory sets of data, it was not possible to conduct a practical test of the model utilizing state-level data. It also became apparent that the emphasis in Phase III would have to be shifted. The initial concept of collecting data for projection purposes had to be changed to not only emphasize the collection of data currently available, but also to include an assessment of the capability of

- a. Existing information flow processes to provide the necessary model input data
- b. Existing automatic data processing equipment to process the needed information and to run the model program
- c. The special education staff to utilize the model.

1.5 It was further concluded that to be fully responsive to a model application feasibility analysis, the study would have to generate recommendations for the development of an information system capable of supporting model requirements.

1.6 In addition, model feasibility testing would have to be conducted on a local level where data not readily available could be extracted from local records with minimum difficulty.

1.7 Thus, from the Phase I development of tentative models and the Phase II exposure to the practicalities of application, the objectives, activities and conclusions contained in this Phase III Report were evolved.

#### PURPOSE OF THE REPORT

1.8 The purpose of this report is to present the findings, conclusions, procedures, and data which were developed during the conduct of the Phase III portion of the Study of the Need for Educational Manpower for Handicapped Children and Youth. It includes:

- a. The results of the Manpower Requirements Projection Model demonstration and validation test
- b. A description of the procedures used in preparing for and conducting the state-by-state survey
- c. A summary of state survey findings regarding special education characteristics as they affect the flow of information required for MRPM application and agency administration
- d. MRPM application guidance for the non-technically oriented user, and detailed model explanation and system documentation

- e. Individual state reports containing an information flow analysis, an evaluation of data element availability and the processing potential, recommendations for the development of MRPM data element requirements, and an assessment of the resources required to implement an information system that will support the model.

## ORGANIZATION OF THE REPORT

1.9 The total report is organized into four specific segments — the Phase III Report proper (Part A) with two appendices, two User's Guides (Parts B and C), and the State Analysis Reports (Part D). Each of these segments is described briefly as follows:

1.10 Part A, the Phase III Final Report, contains in Section II a review of the study objectives and in Section III a discussion of the constraints which established the level of the study, the analytical detail, and the quality and quantity of the data collected. Section IV summarizes the information that was obtained while accomplishing the study objectives and presents the conclusions derived from an analysis of these findings. The objectives, procedures for accomplishment, and results of each of the proposed tasks are discussed in Section V. Section VI suggests further recommended action.

1.11 Supplementing Part A are two appendices:

Appendix 1, State Data Summaries, contains the current special education enrollment and personnel data which was collectable during the survey.

Appendix 2, Information Flow Implementation and Maintenance Cost Estimates, contains, for each state, an estimate of the expenditures necessary to implement and maintain an information flow that would provide the data necessary for model application.

1.12 Part B, Special Education Staff MRPM User's Guide, contains model application guidance for those who would be responsible for the flow and accumulation of data necessary for model application but who do not necessarily desire to review the technical explanations of model mathematics or computer program documentation.

1.13 Part C, Manpower Requirements Projection Model — Technical Documentation of the Computer Program, contains an explanation of the mathematical expressions used in the model as well as the computer program documentation.

1.14 Part D, State Analysis Reports, contains the survey study reports for each of the 50 states.

## II. PHASE III STUDY OBJECTIVES

### INTRODUCTION

2.1 As a result of the findings in the earlier phases of this study, it was determined that the information necessary to utilize the Manpower Requirements Projection Model was, in general, not presently available at the state special education level. Therefore, the potential for successful implementation of the model was greatly dependent upon the flow of basic special education information within each state. In addition, the capabilities and motivation of the special education staff, and the availability of computer hardware would have a bearing on model implementation potential. The recognition of these constraints led to the determination of the objectives and the tasks for Phase III.

### SPECIFIED OBJECTIVES

2.2 The broad objective of Phase III was to lay the groundwork in each state for producing the flow of data necessary for the initial implementation and continued application of the MRPM. The Phase III proposal broke this overall objective into three specified sub-objectives.

2.3 One sub-objective was to specify for each state an information flow and related procedures that would facilitate the continued collection and reporting of data necessary for MRPM utilization.

2.4 A second sub-objective was to identify the extent of assistance each state would require to both implement and maintain the information flow.

2.5 The third sub-objective was to point out to each state the uses and applications of the MRPM so as to motivate each state to collect the data, utilize the model's capabilities, analyze the results, and apply the information in its planning and management.

## ADDITIONAL REQUIREMENTS

2.6 In addition to the foregoing specified sub-objectives, there were two additional major requirements implicit in the task content. First, it was necessary to demonstrate the model application feasibility and information validity, for until this was done, achievement of the other objectives remained academic. Second, it was necessary to collect in each state where available, data which could be used to estimate present special education manpower requirements.

## ACCOMPLISHMENT OF OBJECTIVES

2.7 Each of the objectives and requirements was successfully fulfilled to the degree possible within the limitations imposed by time, funds, and data availability. The results of these accomplishments are presented in Section IV, Findings and Conclusions.

### III. LIMITATIONS

#### INTRODUCTION

3.1 During the course of the study certain factors hindered or curtailed accomplishment of some of the study objectives. Certain limitations were inherent in the study plan, which was based on an established time frame and the visit of one survey analyst to each state; others resulted from circumstances to be expected when conducting a study as involved with state organizations, personnel, and varieties of data as was this 50-state survey.

#### LIMITATIONS

3.2 The principal limitations encountered while conducting the survey were in

- a. The availability of the required type of data at the state level
- b. The complexity of state organizational responsibility for the education of handicapped children
- c. The availability of state personnel during the time frame of the visit
- d. The length of time available to visit each state.

3.3 Limitations in these areas varied in occurrence and in individual and cumulative effect from state to state, depending upon the combination of circumstances existing at the time of the visit.

### Availability of Data at the State Level

3.4 The availability of data at the necessary level of detail within each state agency had a direct effect on the data collection task and an indirect effect on the performance of the other survey duties. Incomplete data collection occurred in some instances because of total non-availability of certain data, over-aggregation of data (for example, total enrollment by handicapping condition but no breakdown by education level or educational program type), or only partial availability of data (e.g., data available from the public school system but not from the state institutions). When these conditions existed, there was frequently no way, within the available time, of obtaining the depth of detail desired.

3.5 An undesirable effect could also occur, however, when extremely detailed data, such as individual classroom records or teacher's reports, were the only source of data available. Frequently the state agency staff was too limited to provide much assistance in the aggregation of the data, and if the analyst spent too much of his limited time aggregating data, he might not be able to pursue the other objectives of his visit. A trade-off might have to be effected at the expense of the collection of data. Any of the foregoing conditions could be the cause of missing or incomplete data, and where the data were incomplete, the current manpower requirements estimates could not be made.

### Complexity of Handicapped Child Education Responsibilities

3.6 The responsibility for the education of handicapped children is rarely confined to the state special education agency. In some states the responsibility is shared by only one or two other state level agencies and the division of responsibility is clearly defined. Even this small amount of subdivision occasionally required the survey analyst to conduct multiple interviews and data collection efforts. However, the most difficulty was encountered when responsibility overlapped and there were a number of agencies involved. Then scheduling interviews, visiting different sites, and orienting each new interviewee could consume much valuable time. Every effort was made to assemble the responsible personnel in one meeting whenever possible; nevertheless, the more complex the handicap child education responsibility in the state, the greater the difficulty in accomplishing all of the survey objectives within the allotted time.

### Availability of State Personnel

3.7 Another important problem arose when state agency personnel, because of their busy schedules, could not be available during the state visit for as much time as was needed. This condition was most critical in states having small staffs, where one staff member might be the sole authority in particular areas of specialization. This is not to be interpreted as a lack of cooperation. In fact, the cooperation exhibited by almost all of the state agency personnel was outstanding.

### Length of Time for the State Visit

3.8 Both because of the time frame for performance of the survey and because of the amount of state personnel time consumed, each state survey visit was limited to 3-5 days. While adequate for most visits, this period was insufficient in a number of cases, for reasons already cited in this section; data elements could not be collected and data reliability could not be verified in the time available.

### CONCLUSION

3.9 Whenever the aforementioned limitations did threaten to affect the accomplishment of some of the study objectives, priority was placed on the accomplishment of those objectives which would contribute most toward the implementation of an information flow that would provide the necessary data for model utilization. Despite the fact that the collection of data to be used for the estimation of current manpower requirements was at times restricted, it is felt that all study objectives were successfully achieved.

## IV. FINDINGS AND CONCLUSIONS

### INTRODUCTION

4.1 This section presents the findings and conclusions resulting from the tasks performed in the accomplishment of Phase III objectives. The work in this phase was divided into two major undertakings: (1) the demonstration and validation of the Manpower Requirements Projection Model, and (2) the state survey to collect data, develop information flow procedures, evaluate staff and hardware capabilities, and encourage model implementation. The degree to which the study was successful in attaining its objectives is discussed in the following paragraphs.

### MODEL DEMONSTRATION AND VALIDATION

4.2 When it became apparent that the data necessary to demonstrate the model would not be available at the state level, it was decided to simulate a state condition by substituting a large special school district, where all the data elements could be collected and input into the model for purposes of testing and validation.

4.3 The strategy of the test was to collect data from historic files for the required data elements, input them into the model, make manpower projections, and compare them with the actual employment records to determine the validity of the projections. This process utilized historical data records covering a 4-year span. Further details as to the methodology employed in conducting the test are contained in the Section V discussion of Task 3.

4.4 The model demonstration proved that collection of the data required by the model is feasible and that when the data is used as input, the computer programs are operational. The mathematical relationships established within the



model are valid as evidenced by the contents of Table 1, which illustrates the close comparison between requirements projected by the model and actual manpower requirements by personnel type for the 1968-1969 school year in a mid-western special school district.

4.5 It should be noted that the longer a special education program has been operating, the more stable will be its associated yearly data. Each year that data is collected and the model is utilized, the data will improve in reliability (with reasonable stability attained in four to five years) and the model results will be more valid.

## **SURVEY FINDINGS**

4.6 In surveying the 50 states a great variety was found in those administrative facets of handicapped child education which affect the flow and utilization of special education information. The variables that were found to affect the model application potential are listed below and are discussed individually in subsequent paragraphs.

- Distribution of responsibility for the education of handicapped children
- Types of state special education organizations
- Type and detail level of the data available at the state special education agencies
- Need for additional special education data
- Attitude toward model application
- Legislative, geographic and fiscal factors
- Existing information flow characteristics
- Availability of model data elements
- Availability of resources for model application.

### **Distribution of Responsibility for the Education of Handicapped Children**

4.7 Responsibility for the education of handicapped children almost never belongs to one state agency alone. Other state agencies besides the education departments have a portion of the responsibility. Most frequently involved are the departments of public health, mental health, and social welfare, and autonomous state institutions. Guidelines generally exist for the assignment of a child to any one of the services, but they are not always well-defined.

TABLE 1

DEMONSTRATION OF VALIDITY OF PROJECTIONS MADE BY THE MANPOWER REQUIREMENTS PROJECTION MODEL

. Comparison of 1968-69 Manpower Requirements — Projected vs Actual

Personnel Type	Manpower Requirements		Personnel Type	Manpower Requirements	
	Projected By Model	Actual		Projected By Model	Actual
Teacher of TMR - Elementary	14.52	15	Aide for OH - Secondary	1.46	3
Teacher of TMR - Secondary	10.42	10	Physical Therapist for OH - Elementary	2.73	2.9
Aide for TMR	13.05	13	Physical Therapist for OH - Secondary	.50	.6
Teacher of EMR - Elementary	75.19	77	Occupational Therapist for OH - Elementary	3.25	3.3
PE Teacher of EMR - Elementary	1.23	3	Occupational Therapist for OH - Secondary	.27	.2
Language Development Teacher of EMR - Elementary	8.58	9	Teacher of VH - Elementary	3.01	3
Speech Therapist - EMR - Elementary	2.39	7.5	Teacher of VH - Secondary	2.32	3
Teacher of EMR-SI - Elementary	5.96	6	Teacher for Special Learning Disabilities	9.16	5
Assistant for EMR-SI - Elementary	2.86	3	Assistant for Special Learning Disabilities	2.58	3
Teacher of EMR - Secondary	50.15	50	Social Worker - SLD	.99	1
Driver Education Teacher of EMR - Secondary	1.00	1	Teacher of the Deaf - Preschool	3.59	6
Vocational Home Economics Teacher of EMR - Secondary	1.74	2	Teacher of the Deaf - Elementary	11.70	11
PE Teacher of EMR - Secondary	1.22	3	Assistant for Deaf - Preschool	1.78	3
Industrial Education Teacher of EMR - Secondary	1.76	2	Assistant for Deaf - Elementary	4.34	4
Teacher of OH - Elementary	11.99	12	Teacher of Deaf - Secondary	1.68	2
Teacher of OH - Secondary	3.29	5	Hearing Clinician - Elementary	7.29	7
Aide for OH - Elementary	9.02	9	Hearing Clinician - Secondary	1.82	2
SI - Special Instruction	OH - Orthopedically Handicapped		VH - Visually Handicapped	SLD - Special Learning Disability	

4.8 The reasons for the dispersion of responsibility include:

- a. Jurisdictional assignments which might occur when services for a handicapping condition are provided by several sources (e.g., state institutions, local public schools, or other state agencies) — For instance, a blind child residing in a district providing no public school special education program for that handicap may be assigned to a state institution for the blind, whereas a child residing in a district where such a public school program is available may not be eligible for institutional services. On the other hand, a vocational rehabilitation department may have programs for training educable mentally retarded children for a vocation in a district where there are also public school special education programs for the same age range. The point at which the responsibility passes from one agency to another may be nebulous.
- b. Functional assignments established by the organization of state services — This type of responsibility dispersion may arise, for example, in an area where a mental health agency exists and responsibility for the education of children with certain forms of mental handicap is included in its functional charter. In some instances a state agency was established to service a particular handicapping condition recognized at the time of its charter. Since its establishment, new services have become available, but responsibility for them has been assigned to a different agency. Because of historical involvement in state legislative and organizational structures, the original agency continues its function, and dispersion of responsibility is maintained. This kind of situation most frequently occurs in the area of education of the mentally retarded.
- c. Specialization capabilities in a particular handicap area, such as public institutions for the blind or the deaf.
- d. The existence of private educational services — While private organizations have no legislated responsibilities, they are an additional source of special education for handicapped children. Some states provide tuition payment and rely upon specialized private facilities to serve certain types of handicapped children. In some cases, private institutions are a means of circumventing legislative fiscal constraints.

4.9 There are additional variations in the reasons for the fractionalization of educational services to handicapped children, but, for the purposes of this study, the reasons are only important because of their effect on the special education information flow and the use of the Manpower Requirements Projection Model. Each additional agency, autonomous institution, and private facility adds to the complexity of establishing data collection procedures and data consistency. Another factor which arises indirectly from this fractionalization is that in many states the personnel qualifications for teaching handicapped children vary from agency to agency, state school to state school, and of course, from one private school to another.

#### Types of State Special Education Organizations

4.10 The organizational hierarchy and function of the individual state special education agencies has an important bearing on the information flow. The state special education agency almost always serves the state's public school system and has additional responsibilities in other areas (e.g., state schools and institutions, private facilities), depending upon individual state legislation. Organizationally, the agency is contained within the state department of education (or public instruction, etc.), but its level within the state department varies considerably. In some states, the director of special education is directly responsible to the superintendent of education (or his equivalent) and in other states he may be several levels removed.

4.11 The special education intra-agency organizations also exhibit a variety of structures. In some states, particularly where the staff is very small, each staff member, although primarily responsible for a specific portion of the whole job content, can "fill in" to perform other special education duties. In such cases, communications and information flow within the agency are good. The other extreme involves complex agencies where there is a specialist for each handicap condition and coordination among staff members, even to the request of data from the locals, is minimal or nonexistent. This causes variations in the level of data detail available at the state agency, to say nothing of the deluge of information requests that can be imposed upon the local school districts.

4.12 The functions of the special education agency also vary widely from state to state. The range of legislated responsibilities runs the length of the spectrum from practically no responsibility to rather complete control of the state's education effort for handicapped children. Agencies may

- a. Oversee distribution of funds, exercising only enough control to obtain information upon which to base fund disbursements.
- b. Provide guidance to local education agencies for the formulation and development of special education programs — This entails more involvement at the local level and a better knowledge of local procedures, definitions, and facilities.

- c. Enforce state special education regulations pertaining to diagnosis and establishment of classes, approval of curricular content, teacher approval, individual child applicant approval — This may also include provision for coordination with other state agencies and private facilities involved in the education of the handicapped.

4.13 Insofar as the model is concerned, the organizational structure is important only in that it reflects on the ability of the special education staff to influence the data from the public schools and other state agencies and private facilities.

4.14 The functions for which the special education agency is responsible correlate rather well with the information that is made available to them. The study findings indicated that the more involvement the state staff has with the local agencies, the better is their "leverage" for requesting, and obtaining data.

#### Level of Data Available at State Special Education Agencies

4.15 One of the first tasks performed in the analysis of each state's information flow system was to determine the level of detail available at the state level for the data elements required by the model. During the course of the survey, analysis revealed a variety of levels, both within and among special education agencies. Frequently, the functional responsibility of the special education agency was found to dictate the level of data available, since little more than the data required by the agency is collected or aggregated.

4.16 The following descriptions of types of information collected indicate the various levels of available data:

- a. Sufficient to support financial disbursement only — This is generally very aggregated local education data which reflects the basis used for fund allocation, for example, the total number of children served, by handicapping condition.
- b. Sufficient only to satisfy the requirements to qualify for Federal assistance such as the Title VI-A Plan — In this respect, the Federal accounting requirements become a prime motivator for developing information flow.
- c. Sufficient to satisfy the specific needs of only a portion of the special education programs — With decentralized intradepartmental collection procedures similar data, applicable to all handicaps, is not collected; detailed data becomes available only for the specific programs polled.

- d. Sufficient for a specific purpose, possibly to reinforce some request to the legislature — This kind of data, contained in non-routine reports (special one-time surveys), is allowed to become obsolete until there is need to initiate another special survey. Occasionally these non-routine reports were found to contain the level of detail required for model application, but the data was either obsolete or the mechanism for continued collection of the data was nonexistent.
- e. Sufficient for projections, based upon a state's individual model — Projection data was found to be available in varying degrees of accuracy for numerous different subjects including child populations, special handicap conditions, special education manpower requirements, pupil enrollments, etc. Although the rationale for many of these projections does not provide for all of the elements that would affect the projections, the fact that some states are making an effort to anticipate their problems and plan for their solution is encouraging, since it is likely to increase the desire and need for the Manpower Requirements Projection Model.
- f. Sufficient to provide statistics for annual reports detailing the accomplishments of special education for the previous year — Many of the state special education agencies have elements of information flowing to them that describe the status of services. In some states, the level of detail approximates the requirements of the MRPM, and with modification, could be the basis for the necessary information flow.

4.17 In summary, it was found that although the current level of data detail at the state level could not support the model, in many cases only minor modifications to an already existing information flow would be required to provide data sufficient for initial model implementation.

#### Need for Additional Special Education Data

4.18 In many of the states visited, it was found that the information available to the special education staff was inadequate for their requirements, even without consideration of the MRPM. In almost every state it was readily admitted by the directors of special education that there are elements of data which would be very



useful to them, but which for various reasons they do not now collect. The reasons for this information shortage include:

- a . Insufficient funds
- b . No authority to collect data from LEA or other agencies
- c . Lack of staff for processing and analysis purposes
- d . Need for guidance in setting up data collection procedures .

4.19 Additional data is needed by many of the state special education agencies to document services provided, to analyze the status and effectiveness of services, and to plan for both the existing level of activity and model application. The requirement for data collection for model application purposes could provide the impetus to initiate improved data collection procedures in many states .

#### Attitude Toward Model Application

4.20 All of the 50 state special education agencies cooperated completely with the analysts conducting the survey. After the analyst explained and discussed the model application objectives, data element requirements, and the existing information flow with the special education director (and in many cases, with officials of other affected agencies), the attitude of the state personnel toward the Manpower Requirements Projection Model was evaluated.

4.21 In most cases, the directors were primarily intrigued by the potential for additional data which might become available to them. They did not always agree that all of the specified data elements were necessary or applicable to their particular situation, but they did feel that the basic elements would, for the most part, be useful for operational analysis. Where the full concept of the model potential was well understood (as was generally the case), a definite interest in utilization of the model was exhibited. However, the actual availability of the model and suggestions as to how it may be implemented will help the directors to evaluate model capabilities and decide whether to use them.

4.22 In a few instances, the current gap between manpower supply and requirements is so great that the need for projecting requirements is too distant a problem. In such cases, the directors considered model application to be an academic exercise. When this condition obviously existed the survey analyst concentrated primarily on developing an interest in creating an information flow to provide the necessary data for the future, when manpower requirements projection would prove to be a practical planning aid.

#### Legislative, Geographic, and Fiscal Factors

4.23 Among the set of variables that affect model application is a group of conditions that reflect each state's unique characteristics. The effect of each of these conditions on the complexity of the information flow, and hence on the model application, varies from state to state.

4.24 Handicap Definitions. Each state applies its own definitions to the handicapping conditions. These definitions are the basis for diagnostic classification and determine the type of service the child will receive. Even the definitions of the basic handicap groups may vary from state to state. In some states, the deaf and hard of hearing are grouped in the "hearing impaired" category; while in other states the hard of hearing may be included in a "speech and hearing" category (which excludes the deaf). The definitions are statistically important because they define which children are served by a specific type of special education program; this in turn affects the special education personnel requirements.

4.25 Handicapped Areas Served. This set of variable refers to the handicapping conditions served and the educational programs available to serve them. A child with a handicapping condition may receive his education in a state residential school, a public school special education class, a special day school, a resource room, or by an itinerant teaching program, depending upon the special education policies of the state. Which programs a state utilizes may affect the manpower requirements because teacher/pupil contact ratios may vary from program to program by handicapping conditions served.

4.26 Fiscal Attitude Toward Special Education. The state agencies are in competition with each other for the allocation of the available state funds. It is not unusual to have a state's special education budget controlled not by the services needed but by some fund distribution formula that gives special education its "piece of the pie." This of course reflects on manpower requirements projections because it introduces another dimension into the overall problem of satisfying these requirements. Here, however, good information and projections can be most useful by presenting factual evidence to support service requirement claims.

4.27 Mandatory Legislation. This type of legislation serves at cross purposes. Its objective is to ensure education services to the handicapped by specifying that when a community has a certain number of children requiring special education, it must arrange to provide it. This intent is good; however, too frequently the funds are not available at the local level to provide the needed services and the local agencies avoid identifying handicapped children, to circumvent the legislation. This slows the diagnostic process and seriously distorts the true measure of annual incidence. In states where mandatory legislation exists without the funds to serve each identified child, some consideration should be given to permit diagnosis and identification without forcing the community into a financial commitment it cannot meet. In addition to distorting incidence, under mandatory legislation it is difficult to get a true measure of the handicapped child population, and thus, of special education requirements of a state.

4.28 Local vs State Sponsorship. This characteristic becomes important when local sponsorship of services deprives the state of any flow of information pertaining to special education efforts. In some states, special education programs must receive the approval of the state agency regardless of the source



of sponsorship, while other states pride themselves on the local autonomy of their special education programs. The net effect of this characteristic is really dependent upon the communication that is permitted to exist between local and state levels.

4.29 Population Density/Dispersion. In some states there are areas so sparsely populated, and the geographic distances between even small population centers are so great, that regular education service poses a problem, to say nothing of special education. In such areas handicapped children either receive no services or the services of a regular education teacher who, if the child is fortunate, will have had at least some special education training or guidance. These problems must be considered when making manpower projections. In the first place, normal teacher/pupil contact ratios cannot apply because of the low possibility of finding enough children with the same handicap condition for even a minimum sized class within a feasible transportation range. In addition, there is difficulty in attracting qualified personnel to such remote areas.

4.30 Manpower Availability. The availability of qualified special education personnel is affected by several considerations, not the least of which is money. One state may have little difficulty in obtaining qualified teachers because of a good pay scale, while a neighboring state offering lower pay "goes abegging." An understaffed state may have good university training programs but lose its potential manpower because of salary limitations. The wide variation in teacher training requirements and certification is another factor affecting manpower acquisition. Other factors such as the special education "atmosphere" in a state or locality, and the previously mentioned geographic dispersion problem have an influence upon special education manpower.

#### Existing Information Flow Characteristics

4.31 The 50-state survey revealed a variety of characteristics that are found in state information systems. The combination of data elements into a system was often not the result of a preconceived information system design, but was, rather, the result of building on information already available, or the cumulative result of special information requirements.

4.32 Type of System. Obviously, the information available at a state special education agency will either be derived specifically for special education use or extracted from a system designed for other users. The survey indicated that if the information is of the former type, its level of detail is likely to approximate that required by the MRPM. However, data extracted from a system used primarily for other purposes (e.g., a regular education information system) is generally too highly aggregated for model use. This is not meant to imply that special education information could not be compatible with another system or, for that matter, be a subsystem of another system. It does mean, however, that the system from which special education information is successfully extracted must provide for those data elements unique to special education requirements.

4.33 A pupil accounting system (PAS) that is designed for the state's overall education system can be fully responsive to special education needs if it also provides the additional special education data elements. A data summary system (wherein detailed data is collected at the LEA, but the LEA summarizes the data before transmittal to state level) can also satisfy model requirements if summarization is by the required categories.

4.34 Of course, the condition was also found wherein the available data was not derived by any systematic method, but was assembled through unofficial informal channels. This type of data was generally incomplete in that all sources were not tapped and the methodology for repeating the data collection process was not established.

4.35 In summary, it was found that a small number of states (five or six) had, or were in the process of developing, information systems that were sophisticated enough to integrate both general education and special education information requirements. By far, the greatest majority of existing special education information systems are the result of the special education agency striving to collect that data which it needs to operate, and in many cases the results are minimal. These systems are characterized by a lack of cohesiveness in the data collection process and in data reduction. Often vital elements are missing which are required to make the existing data meaningful. There are a small number of states that essentially have no special education data other than that needed for financial allocations.

4.36 Basic Flow Patterns. The reporting flow patterns vary according to policies existing in each state. Possible general flow paths are:

- a. Classroom to LEA to state level, with summarization at state level
- b. Classroom to state level, with summarization at state level
- c. Classroom to LEA, with summarization at the LEA and transmittal of the summaries to state level.

4.37 The initial source of enrollment data elements (enrollments, attritions, transfers) is generally classroom (or itinerant) teacher reports. In most states enrollment data is first transmitted to the LEA; then a copy is either forwarded to the state level or the LEA aggregates the data from a number of classrooms and forwards it to the state level. In some cases, however, the flow of information is directly from the teacher to the state education agency (SEA).

4.38 Data on children identified as handicapped but not enrolled in a program, is usually reported by the LEA when it is available. In some states this data already exists in detailed form at state level because child application approval is at state level.

4.39 Personnel data, excluding initial certification, is frequently submitted, by the LEA to the SEA, in special education program or class approval plans. In many instances, however, this basic source of information for determining active teacher personnel is not utilized, with the result that a roster of active personnel is not available at the SEA.

4.40 Very rarely is there a formal flow of special education data between state level agencies or between private schools and the state special education agency. One-time flow of data between these sources usually requires a special request (formal or informal), which must be renewed each time the data is needed.

4.41 Forms Variations. As might be expected, the variety of forms encountered was all but endless. Variety among states is immaterial, but the variations in reporting formats that occur at all levels within many states certainly contribute to the data preparation work load, to say nothing of negative effect on data consistency. Many states had unique forms for each handicap condition and also employed different reporting procedures for each handicap. The necessity for unique information about each handicapping condition is obvious, but much of the data is also standard. Recognizing this fact, some states have organized their handicap reporting forms so that the portion containing standard data is arranged in the same format on all forms.

4.42 It was obvious to the survey staff that the reporting forms used in many states were designed by people inexperienced in the requirements of good forms format. Awkward data arrangements, insufficient space for data insertion, misleading column titles, confusing directions, and repetitious data were some of the more common problems. Rarely had any consideration been given to the ease of data conversion directly from the forms into automated data processing systems. In some states, each handicap specialist is permitted to design and circulate for completion those forms which he deems necessary to the collection of data for his area of specialization. Ironically, much of the data collected by some states is never aggregated or even subjected to individual analysis.

4.43 Degree of Automation. Many of the state education agencies are becoming aware of the advantages of using automated data processing techniques in their general education programs. However, the use of automated data processing procedures is frequently not considered by special education agencies. The need for these procedures is often not even recognized, for the agencies are too accustomed to starving for information and making do with the little data they are able to manually assemble. On several occasions the survey analyst, during his visit to the state, established the first communication between the special education agency and the data processing agency charged with the responsibility for providing data processing support.

4.44 There is little doubt that the states already utilizing automated processing will most quickly apply the MRPM. Certain states, because of their small populations and paucity of special education programs will be able to manually aggregate data for some time to come. Unfortunately, there may be a correlation between a lack of need for efficient data processing procedures and inadequate special education services.

4.45 Time Period Variations. The reporting cycles that are in effect in a state are usually linked to the need for providing budgetary data. In most cases this is consistent with the operational data needs of the educational system within the state. Unfortunately, there are occasions when the processing of non-budgetary data is so delayed that it is obsolete before it becomes available.

4.46 The establishment of a common time frame for all state to report the findings of the MRPM to BEH is recommended, but the fact that findings may be based upon different time periods must be considered during any analysis of combined results. Changes in the reporting cycle within a state may be constrained by many other governmental procedures that are little related to special education.

#### Availability of MRPM Data Elements

4.47 Full application of the Manpower Requirements Projection Model requires that several categories of data elements be available. These include

- a. Children identified as needing special education
- b. Unidentified handicapped child population (estimate)
- c. Mobility of children into, within, and out of the handicapped child population
- d. Special education simulation variables
- e. General child population projections
- f. Special education personnel supply (optional).

The current availability of the data within these categories, and the potential for data development, are discussed in the following paragraphs. A general comment that applies to all elements is that seldom were data pertaining to the total of handicapped child services available in one set of records or in one data bank. Usually, each agency, autonomous state school, and private school maintained its own records for the children within its jurisdiction.

4.48 Children Identified As Needing Special Education. This category is divided into two areas — enrolled, and identified and waiting to be enrolled. "Enrolled" refers to the handicapped children who are currently receiving educational services in a recognized special education program. "Identified and waiting to be enrolled" refers to the children who have been diagnosed as needing special educational services, but for some reason are not yet enrolled; this group constitutes the special education waiting list.

4.49 The enrolled children are almost always accounted for, in one way or another, at state level. However, to be useable by the MRPM, it is necessary that enrollment data be broken down by age, handicapping condition, and education program. Enrollment data by handicap group was usually available, but further delineation, when it did exist, was generally by education level (elementary, primary, intermediate, secondary, high school, etc.) and not by

individual year of age. This, of course, is not satisfactory for model application because the age mix within the education level of the handicapping condition (target group) is not known. Many states were able to provide totals by handicapping condition and educational program, however, educational programs were not always well-defined. Residential schools and itinerant programs were the easily identifiable extremes but, aside from grouping the children into "special classes in regular schools," other program areas were not too well established for reporting purposes.

4.50 Records pertaining to those children identified and waiting to be enrolled were scarce at state level and, when available, were usually uncompiled and incomplete. Some states are making provision for collecting the waiting list data by including it in the information items requested from the LEA.

4.51 The establishment of meaningful waiting list data is complicated by several serious problems, one or more of which occur in 80 percent of the states. One of the major problems, and of course a very basic one, is the inability of states to provide the diagnostic services needed to positively identify the conditions of children referred, or in the absence of referral, to seek out and identify the children requiring services. The shortage of funds, qualified diagnostic personnel, and diagnostic facilities prohibit many states from servicing more than those children who have been referred as potentially needing special education services. In fact, it is not unusual to limit diagnosis to the extent necessary to fill existing or near future special education openings.

4.52 Another problem complicating the establishment of total waiting list data is the multiplicity of sources for both referrals and diagnoses, and the level of authority to which the findings are reported. Referrals can be made by parents, doctors, teachers, school nurses, welfare and legal agencies, etc. They can be made to school superintendents, to state agencies such as special education, health, mental health, welfare, and to public and private clinics. Some states have established a formal procedure to be followed in the diagnostic process and in such cases it should be possible to assemble data on those children who have been diagnosed and have not received a special education assignment. (It cannot be assumed, however, that such a list is representative of all children requiring services unless diagnosis is not constrained by funds, personnel, or policy). In states where the reporting of referrals and diagnosis is less formal, or where the operations of the LEA are mostly autonomous (resulting in state-wide inconsistency of policy) the potential for collecting useable waiting list data is slight.

4.53 Another problem that affects the potential for obtaining waiting list data has been mentioned previously in connection with the variables affecting special education program services. Mandatory legislation — that policy which places the responsibility on the LEA to provide each identified child with special education services — frequently serves as a restraint to the referral and diagnosis of potentially handicapped children. Referrals are not made, nor are diagnoses



performed unless personnel, facilities, and funds are available. Thus, in a community that may not be able to serve any additional "identified children," no waiting list exists because no children beyond those who can be served have been identified.

4.54 The major causes for the lack of "identified but unserved" data have been discussed. For these reasons, such statistics are not often used as a basis for planning for additional special education requirements.

4.55 Unidentified Handicapped Child Population. In the absence of comprehensive diagnostic capability, most states use prevalence rates to estimate the number of children in each category of each handicapping condition. Although a few states use rates based on special studies, most states use the national prevalence rates, or modifications of the national rates. These constitute the best available tool for estimating the handicapped child population, although officials frequently feel that some of the rates in the set are not accurate for their particular state.

4.56 Handicap census is another technique employed by some states to estimate their unidentified handicap population. Such surveys generally utilize a questionnaire to be completed by personnel not skilled in diagnostic techniques. Regular classroom teachers or other participating personnel are asked to categorize classroom children and/or to visit homes to ask parents about preschool age children who may be handicapped. One problem is that to determine the validity rate of the census, a correlation must be made between these "unskilled diagnoses" or referrals and an actual diagnosis. In addition, too frequently the census is conducted on a one-time or sporadic basis and validation through the accumulation of follow-up statistics becomes difficult.

4.57 A few states are pioneering in a census method designed to greatly reduce unqualified diagnostic classification by providing the "census taker" with a series of symptoms (observable indications) which can be applied to a child's behavior without the need for diagnostic categorization by non-professional personnel. The symptoms are then reviewed by qualified personnel who categorize the child. The objective is to provide greater quantities of more accurately based referrals.

4.58 Mobility of Special Education Population. The size of the identified handicapped child population in a state is altered by the addition of new children, including new enrollees and incoming interstate transfers, and by attritions (graduations, dropouts, outgoing interstate transfers, deaths, etc.) which deduct from the total population. The availability of data pertaining to these mobility factors was almost always not satisfactory for MRPM purposes.

4.59 Data on new enrollees and incoming interstate transfers was usually not available at the same level of detail as were enrollment data.

4.60 Records on newly diagnosed children, where diagnosis was tantamount to enrollment (diagnosis only when capacity was available), were usually available by age and handicapping condition at state level if enrollment data were reported on each individual student. The date of enrollment is frequently a part of the reporting record. This information is almost certainly known at each LEA; however, where the newly diagnosed children are not immediately enrolled, the availability of the information is on a par with the waiting list data previously discussed.

4.61 Attrition data by handicapping condition does appear in many state special education records. However, a breakdown by cause of attrition appears less frequently, and attrition by single year of age was almost never available. Most states recognized the utility of such data and, as a result, this will be one of the easier data elements for which to develop collection procedures. Only a minimal modification to existing systems will be required.

4.62 Special Education Simulation Variables. To fully utilize the simulative capabilities of the model, certain types of background data are required. Educational program mix trends are one of the data elements useful in the projection of manpower requirements because their variation can affect manpower requirements. Many states had enrollment data by handicapping condition and education program (residential, special day school, special class in a regular school, itinerant, etc.), but, as previously discussed, the program breakdown frequently included only three divisions — residential, itinerant, and the area in between these two. The state survey indicated that historical records will usually contain sufficient data to enable special education consultants or staff to plot an interpretation of trends in program mix.

4.63 Other simulative data elements include personnel types and personnel/pupil contact ratios. The model requires that these categories of data be available by target group (subsets of the handicapped population having major distinguishable special education personnel requirements). Almost all states required that direct contact personnel have some special qualifications to serve handicapped children and most of these states required that the qualifications be unique to the handicap area in which the personnel were to serve. Thus, the identification of a teacher of the blind, a teacher of the mentally retarded, a speech and hearing therapist, etc. was generally possible through available data. However, few states required a specific qualification by education level (elementary, secondary, primary, intermediate, etc.).

4.64 Personnel/pupil contact ratios for a state's public school system are almost always specified by state legislation, or department of education or special education agency directives. These ratios usually were found to vary according to the requirements of a handicap group, but, most frequently, there was no variation in the ratio within the handicap group because of educational program (except for itinerant caseload ratios) or educational level. There were some

states that specified only one personnel/pupil contact ratio for all handicap conditions. Whatever the personnel/pupil contact ratio, it was always obtained easily insofar as the public school systems were concerned. In most instances, these ratios were not formally documented for state institutions or private schools. Each institution or private school usually had its own ratios which could vary radically according to the nature of services provided and the educational policies in effect.

4.65 Yearly Projections of General Child Population, By Age. Many states had population projections or statistics that could be utilized in the preparation of annual population projections by single year of age, for the period for which the projections were desired. The basis for the derivation of these projections included

- Historical records by grade level
- General population trend predictions
- Time increments (1970-1975-1980-etc.),  
by age blocks (0-5, 6-10, 11-15, etc.).

This information was not generally available as part of special education data, but was available from various state level agencies responsible for statistical analysis (financial offices, planning offices, etc.).

4.66 Special Education Personnel Supply. Although this data is not necessary to the projection of manpower requirements, it would be necessary if a state wished to determine the gap between current manpower supply and requirements. This type of information is frequently obtained from individual forms and compiled for distribution as a special education personnel directory. The basic data was usually found to be available within the state special education office, and although it was rarely summarized and totaled by area of specialization, summarization was not too difficult.

#### Availability of Data Processing Resources

4.67 The resources necessary for the implementation and application of the Manpower Requirements Projection Model include both manpower skills and data processing hardware capability. The availability and adequacy of both varied widely among the 50 states. Existing levels of sophistication in information systems and organizational interfaces between education and data processing groups also varied from one state to another.

4.68 Manpower. To implement the information flow necessary to support the MRPM, several different types of manpower capability are required to perform the necessary functions of system design, data source determination, form design, input data preparation, programming, output format design, coordination, and output analysis. Talent of this nature was rarely found within the capability of the existing special education staffs because these skills are not indigenous



to normal special education operations. In almost every state, however, there exists within the state government an organization which is theoretically responsible for providing special education with the type of technical support necessary to initiate and maintain an information flow. In practically all cases where such an organization does exist, it contains the type of personnel skills necessary to the implementation of an information flow and the application of the model. However, this organization may or may not be able to provide such services depending upon present work load, staff size, and priority of work. In many states, special education agencies receive few services as a direct result of their own requirements. (Frequently the services obtained are an offshoot of some other reporting requirement.) Generally, in those states where an information system responsive to special education needs did not exist, either the request for such services had never been made, the special education staff did not know how to formulate its data needs, or there was a lack of understanding or appreciation of what could be accomplished using such services. This is not too surprising since special education personnel are, by nature or profession, primarily "people-oriented" rather than "systems-oriented."

4.69 Some of the manpower skills required, such as systems coordination and data output analysis are very much a part of the capabilities that special education staffs should possess (and in most cases do possess). However, the unavailability of the necessary staff for additional data development efforts was characteristic of the understaffed status of many special education agencies.

4.70 In summary, the personnel required to initiate and maintain the information flow were usually available, although the personnel for application to the tasks necessary to accomplish the flow was very frequently in short supply.

4.71 Hardware. The computer hardware capacity that is required falls into two categories: capacity to process an information system, and capacity to process the Manpower Requirements Projection Model.

4.72 Most state education agencies theoretically had the hardware capability, or access to it through other agencies or universities, to process an information system. However, the special education agency's actual access was frequently limited because of lack of machine availability, often the result of the low priority that was assigned to special education processing needs. This actual limited access is evidenced by the fact that, at the time of the survey, approximately a third of the state special education agencies were utilizing automated data processing techniques in their own information flow. Since the survey visits, a few states have begun using an automated system for the first time.

4.73 The hardware capability requirements for the model generally exceed those of an information system primarily because of the need for approximately 24-thousand word storage capacity. Even so, sufficient computer capability to run the MRPM program was present, if not always available, in over 80 percent of the states. Only six or seven states did not have a FORTRAN compiler, required by the MRPM computer program.

## SURVEY CONCLUSIONS

4.74 After completing the state visits, the survey staff prepared individual state analysis reports. These reports contain an evaluation of the data element availability, MRPM implementation resource requirements, and recommendations for effecting an information flow that would support MRPM application. The individual state analysis reports are contained in Part D, State Analysis Reports.

4.75 The summarized conclusions resulting from the analysis of all the individual state reports are contained in the following paragraphs. Not every conclusion applies to every state; rather, these conclusions present a broad overview of the status of special education information systems across the 50 states.

### Status of Special Education Information Flow at State Levels

4.76 Few states have special education information systems that are capable of providing management type information, that is, data that has predictive as well as evaluative applicability. The need for additional data to document services provided, analyze program status and effectiveness, and provide a base for predictive planning is quite evident. A major upgrading of the information flows within almost all states is indicated. To accomplish this objective, changes will have to be made by the states — major in some, and relatively minor in others.

4.77 The basic modification that applies to the majority of states is a change in thinking as to what purpose information can serve, and what must be done to obtain the necessary information. Many of the state special education agencies accept what data they have available to them and manipulate it into some sort of status report to the legislature and the public. There is an admission that more information could be useful to them in the management of operations, but many special educators are not skilled in the techniques of information system development. Data flow development often takes a low priority compared to education program development.

4.78 The first step in upgrading the information available to special education administrators is to provide the agencies with an understanding of what types of information can be made available, how to obtain it, and how to use it. The state survey conducted in conjunction with the Phase III effort has already accomplished this to an extent — at least 12 states have undertaken some modification of their information requirements as a direct result of discussions on Manpower Requirements Projection Model data needs. This does not necessarily mean that these states are going to immediately adopt the MRPM for their use, but they have recognized the utility of many of the data elements for management of their present operations.

4.79 Another major requirement for the improvement of information flow and data reliability is acceptance by special education agencies, both at state and local levels, of the fact that each data source and each data element is an

integral part of the overall system. Increased data availability need not always require increased work in data collection. Frequently, coordinated and systematic data collection will require no increase in effort while yielding much additional information.

4.80 As previously mentioned, approximately one-third of the states are currently using automated data processing (ADP) techniques in the handling of their data. While there may be a few states that can rationalize their non-use of these techniques because of a small handicapped child population and/or the low volume of services that they can offer, the vast majority of states cannot easily obtain the information they need without benefit of ADP techniques. The manual operations are too time consuming for an already understaffed agency.

4.81 In very few of the states is the data pertaining to handicapped children inclusive of all of the sources of handicapped child education — public schools, state schools and institutions, and private facilities. Usually, each agency maintains its own records. While it is possible for a state special education agency to develop an information system that will contain the data pertinent to the areas of its own responsibility, this does not necessarily result in a total handicapped child data base. Such limited information would defeat the objective of the MRPM to project special education manpower requirements for the state's total handicapped child population. The reasons for the distribution within a state of responsibility for the education of handicapped children are not relevant to this study. It must be stressed, however, that interagency cooperation and communication are absolutely essential to the establishment of a common handicapped child data base that will be representative of the state's total service requirements and responsive to each agency's information needs. Further, in some states the special education agency's internal coordination and communication must be strengthened. Standardization of forms, data elements, data collection cycles, and timetables are all prerequisites to internal data flow stabilization.

4.82 Liaison between state level and local level special education personnel is also essential to the establishment of an information flow. In most states where state special education agency activity is confined to financial disbursements or where there is very little professional involvement, the information flow is minimal and often inadequate. Conversely, the greater the involvement of the state agency with the local agency, the better the information flow is likely to be. A corollary benefit to greater involvement is the improved capability of state personnel to analyze and utilize the information collected.

4.83 Although computer availability is a problem in many states, the relatively limited application of automated data processing (ADP) techniques to the special education information systems is more the result of a combination of other constraints. The lack of appreciation for the potential availability of additional

information through the application of ADP, and a limited understanding of how to initiate and apply ADP techniques, are important obstacles to automating special education data processing.

4.84 The impetus to improve the information flow must come from within the special education agency. Additional leverage may be required to obtain the cooperation of the LEA and other state and private agencies. One of the first actions that must be taken is the application for priorities to obtain the services of ADP technical personnel for system design and for computer usage.

#### Degree of Federal Involvement

4.85 The requirement to respond to Federal requests for information has been a prime motivator in the development of the existing special education information and further advancement in the quality and quantity of information will require continued Federal influence. Many state agencies need encouragement in the form of incentive and leadership. The MRPM is a form of incentive because, by providing the state agencies with management tools, it can help them to do their jobs better. The Phase III state visits provided initial leadership in many states by laying the ground work for improving the information flow and creating a desire for better data. The impetus that has been gained as a result of this effort should be supplemented and supported by continued Federal sponsorship of programs to assist the states with the development of their information systems.

4.86 A word of caution is warranted regarding Federal requests for information from the states. The more automated a state's information system, the quicker it can respond to information requests. However, a change in a data element to meet needs of the requestor can require considerable reprogramming at the state level. For example, in one instance a change in two data elements requested by the U.S. Department of Education caused the modification of 31 computer programs and entailed many man-months of effort. Changes should be thoroughly evaluated in the light of complications that may arise at the state level when responding to the request.

#### Manpower Requirements Projection Model Application Potential

4.87 Among the objectives of the state visit were explanation of data element structure and the purpose of the MRPM, and analysis of the information flow necessary to implement the model. In the process of accomplishing these objectives, it was possible for the survey analyst to evaluate the potential for application of the model.

4.88 The first conclusion that can be drawn from these evaluations is that the data elements required to support the MRPM were in themselves viewed as valuable information. It was not regarded as feasible to obtain all of the needed data immediately (meaningful data pertaining to the identified handicapped children not yet receiving special education services was seen as among the most difficult to obtain). Nevertheless, acceptance of the usefulness of the information

required for the MRPM was not diminished by data development problems. It was recognized that some elements will simply require time to be fully implemented.

4.89 Further acceptance of the model concept and its potential for application is based upon the utility of various aspects of the model. Because the model has several capabilities, it has an appeal for various types of users and thus has greater potential for application.

4.90 As an intermediate output, the model projects state handicapped population. Such projections can have a most immediate impact on fund allocations. Since special education agencies are competing more and more with other state agencies for available funds, appeals for special education funds must be based on statistics of supply and demand as well as on the importance of special education programs in the lives of handicapped children.

4.91 Another capability of the model appeals to those who must develop training and hiring plans to ensure an adequate manpower supply. The manpower projection feature of the model makes available relevant information upon which to base manpower budgetary estimates.

4.92 A third feature of the model, the capability to simulate changes in the provision of special education services, appeals to those who must evaluate the effect of changes in the educational, technological, or political atmosphere on the special education effort. This capability permits the insertion of representative factors to determine "what happens if" specified conditions occur in a state.

4.93 The second conclusion, then, regarding the potential for application of the model is that insofar as the model concept is concerned, implementation should be no problem, other conditions (hardware available and a satisfactory information flow established) permitting.

4.94 Assuming acceptance of the model concept, the one major consideration affecting implementation is the availability of an information flow capable of providing the required input. None of the states had data immediately available for satisfactory application of the model, although a few had the necessary collection procedures formulated and could probably implement the MRPM within one or two annual data cycles. The absence of unserved handicapped population data is the greatest drawback to rapid implementation. Most states have some diagnostic programs in effect. Programs are usually administered at the local level and children are enrolled where vacancies exist, but frequently no report of unserved or "waiting list" children is made to the state level. In such cases, a procedure is required for systematically reporting diagnoses of the child population and for placing children on waiting lists when services are unavailable. If individual states can be convinced of the value of implementing the necessary diagnostic reporting procedures, then the model can be partially implemented using initial data, with ever-improving data being received as diagnosis approaches



saturation. Those states (approximately 12) having mandatory legislation which induces an artificial constraint on diagnosis, should consider a means of encouraging identification of handicapped children without creating a firm commitment to provide immediate services.

4.95 Most of the other data elements can be incorporated in the existing information flows in all but a few of the states, so that data should be available for implementation of the MRPM in from two to three annual data cycles once the decision is made by each state to go forward.

4.96 The estimated time frame for application of the MRPM, once the state special education agency has decided to undertake the necessary information flow design/modification and implementation, is summarized in Table 2, Estimated Time Frame For MRPM Implementation. The table also provides an indication of those states currently using automated data processing techniques in their present special education information systems. Those states that have initiated some action to improve their information flow and obtain MRPM data elements as a direct result of the survey visits are also shown.

4.97 Hardware availability remains as the last requirement upon which to draw a conclusion. As previously discussed, this is a two-pronged requirement; one requirement is for an information processing computer capability and another is for model application capability. As for the information processing capability required, adequate computers do exist in almost all state agencies although actual availability is scarce in some instances. Wherever possible, special education will have to establish a usage claim in order to be able to use the computer facilities. In most of the cases where the state computer facility cannot handle an additional work load, service can probably be obtained from a state university or procured from a contractor.

4.98 Although MRPM application requires greater computer storage capacity than most special education information processing needs, the large majority of states had satisfactory computer capability or access to it. Further, the small amount of time required per application (approximately fifteen minutes) should create no real difficulty in the scheduling of computer use. It is concluded that computer availability should be no serious problem to model implementation.

4.99 Based upon analysis of survey findings in all of the states, overall conclusions regarding the MRPM are summarized as follows:

- The model is much needed.
- The concept has been favorably received.
- Some surmountable problems will be encountered in creating the necessary information flow.

TABLE 2  
ESTIMATED TIME FRAME FOR MRPM IMPLEMENTATION

State	Annual Data Cycles					Automated Data Processing Used by Special Education	Survey Initiated Action
	1-2	2-3	3-4	4-5	Over 5		
Alabama	X						
Alaska		X				X	X
Arizona				X			
Arkansas		X					X
California		X				X	
Colorado		X					
Connecticut		X					X
Delaware	X						X
Florida	X					X	X
Georgia	X						
Hawaii	X					X	
Idaho					X	X	
Illinois			X				
Indiana	X						
Iowa		X				X	
Kansas			X				
Kentucky		X				X	
Louisiana			X				
Maine					X		
Maryland				X			
Massachusetts			X				
Michigan		X				X	
Minnesota		X				X	
Mississippi		X					X
Missouri				X			

TABLE 2 (CONT.)

State	Annual Data Cycles					Automated Data Processing Now in Use	Survey Initiated Action
	1-2	2-3	3-4	4-5	Over 5		
Montana					X		
Nebraska			X				
Nevada					X		
New Hampshire	X					X	
New Jersey		X				X	X
New Mexico	X					X	
New York		X				X	
North Carolina		X					X
North Dakota			X				
Ohio		X				X	
Oklahoma	X						
Oregon		X					X
Pennsylvania		X					
Rhode Island		X				X	X
South Carolina		X					
South Dakota		X					X
Tennessee				X			
Texas		X				X	
Utah		X					
Vermont			X				
Virginia	X					X	X
Washington	X					X	
West Virginia		X					
Wisconsin	X					X	
Wyoming					X		
TOTALS	12	22	7	4	5	19	12



- There should be no serious constraints because of computer capacity limitations.
- Once the implementation decision has been made by the state, the MRPM could be operational in two to three annual data cycles in most states.

4.100 Conditions vary from state to state and in some states they may be more conducive to early MRPM implementation than in other states.

#### Current Implementation Status

4.101 Many of the states have indicated that they are anxious to undertake implementation of the model. As a result of the survey analyst visit, some states have already initiated steps to modify their existing data collection procedures to incorporate the changes necessary to provide the missing data elements. The basic ground work has been laid and the initial impetus provided, but additional Federal follow-up and involvement will be required to maintain an atmosphere of encouragement and cooperation.

#### Cost Estimates For Information Flow Implementation and Maintenance

4.102 The resources (manpower and hardware) necessary to implement and maintain the information flow recommended in each of the state survey analysis reports are detailed in the individual state reports. Appendix 2, Information Flow Implementation and Maintenance Cost Estimates, of this Part A Report contains a series of individual state tables that summarizes the resources and also converts these resources to a cost figure.

4.103 The contents of the Appendix 2 tables are summarized in Table 3, Estimated Cost Summary for Special Education Data Development and MRPM Application at State Level. This table contains the minimum and maximum cost estimates for each state for both the implementation and maintenance phases. Where only one system has been recommended the minimum and maximum estimates are the same. When alternative systems have been recommended the minimum and maximum estimates will vary. For details of system recommendation, refer to the individual state tables in Appendix 2 and to the individual state analysis/tables reports in Part D of the Phase III Report.

TABLE 3  
ESTIMATED COST SUMMARY FOR SPECIAL EDUCATION DATA DEVELOPMENT  
AND MANPOWER REQUIREMENTS PROJECTION MODEL APPLICATION  
AT STATE LEVEL

State	Design and Implementation		System Maintenance (Annual Cost)	
	Min Estimate, \$	Max Estimate, \$	Min Estimate, \$	Max Estimate, \$
Alabama	7735	8490	2915	3175
Alaska <sup>1/</sup>	4820	4820	1665	1665
Arizona	5525	7285	1425	1425
Arkansas	3430	4485	1510	1570
California <sup>1/</sup>	8670	8670	3500	3500
Colorado <sup>1/</sup>	5790	5790	1930	1930
Connecticut	12105	12105	5925	5925
Delaware	6315	6315	1660	1660
Florida	4780	4780	1385	1385
Georgia	7680	7680	2096	2096
Hawaii <sup>1/</sup>	1920	4290	790	1430
Idaho <sup>1/2/</sup>	3665	3665	945	945
Illinois <sup>1/</sup>	7160	7160	2260	2260
Indiana <sup>1/</sup>	5510	5510	1440	1440
Iowa <sup>1/</sup>	6820	6820	2530	2530
Kansas	5005	6775	1960	2050
Kentucky <sup>1/</sup>	6055	6055	2915	2915
Louisiana <sup>1/</sup>	7665	7665	1610	1610
Maine <sup>2/</sup>	3485	3485	985	985
Maryland	6710	7970	1145	1145
Massachusetts	10890	15030	2890	2390
Michigan	4410	5955	1730	1730
Minnesota	6150	6150	2235	2235
Mississippi	8208	8208	1682	1682
Missouri	5495	8020	1855	3060
<sup>1/</sup> No computer usage costs assumed. <sup>2/</sup> MRPM application not recommended.				

TABLE 3 (CONT)

State	Design and Implementation		System Maintenance (Annual Cost)	
	Min Estimate, \$	Max Estimate, \$	Min Estimate, \$	Max Estimate, \$
Montana <sup>2/</sup>	3535	3535	1520	1520
Nebraska	4835	6495	2080	2195
Nevada	9005	9005	1530	1530
New Hampshire <sup>1/</sup>	2440	5065	1125	1380
New Jersey <sup>1/</sup>	12280	12280	4225	4225
New Mexico	4990	4990	1350	1350
New York <sup>1/</sup>	5710	5710	1630	1630
North Carolina <sup>1/</sup>	5275	5275	1725	1725
North Dakota	4735	6185	565	1165
Ohio <sup>1/</sup>	10880	10880	3110	3110
Oklahoma <sup>1/</sup>	4870	8705	1440	1515
Oregon	9640	9640	1865	1865
Pennsylvania <sup>1/</sup>	6840	6840	1510	1510
Rhode Island	5440	5440	1500	1500
South Carolina <sup>1/</sup>	6420	6420	1155	1155
South Dakota <sup>1/</sup>	6165	6165	950	950
Tennessee <sup>1/</sup>	6670	8970	1405	1405
Texas	9105	16235	3040	4455
Utah	5960	5960	1730	1730
Vermont	3595	7080	1230	1370
Virginia	4035	5050	1460	1480
Washington	2900	2900	250	250
West Virginia <sup>1/</sup>	7325	7325	1060	1060
Wisconsin <sup>1/</sup>	6150	6150	1600	1600
Wyoming <sup>1/</sup>	5475	5475	1550	1550
Total	310,273	350,953	91,534	96,463
<sup>1/</sup> No computer usage costs assumed. <sup>2/</sup> MRPM application not recommended.				

## V. DESCRIPTION OF STUDY ACTIVITIES

### INTRODUCTION

5.1 This section details the activities which took place from the inception through the completion of this study, including the study objective, the procedure for its accomplishment, and the results of each of the contractual tasks.

5.2 This description is presented so that the actions necessary to accomplish the study objectives may be fully understood and so that the results may be evaluated in the light of the procedures necessary to accomplish them. It may provide some guidance for future studies involving broad survey and data collection scopes.

### TASK 1—REVIEW OF INFORMATION REQUIREMENTS

#### Objective

5.3 The purpose of the review of the MRPM information requirements was to modify the definition of certain of the model's data elements, where such modification was necessitated by the total unavailability of the data or the possible misunderstanding of their description.

#### Procedure

5.4 Representatives of the contractor and BEH met to discuss the results of the Phase II Pilot Survey and their implications on the original set of information requirements. The data elements to be requested of each state were reviewed, to enable the design of an effective data collection instrument to be used during the 50-state survey. Additionally, they discussed those data elements whose development required individual discussion with each state.

#### Results

5.5 On the basis of the availability and reliability of the data requested during the Phase II Pilot Survey, it was decided to change the recommended

definition of the set of target groups from the total handicapped child population (those identified plus those believed to exist) to the total identified handicapped child population. The main reason for this decision was the realization that manpower estimates based on a subjectively determined number of children would have little meaning. Since none of the five pilot survey states had any empirical data to support their estimates of their unidentified handicapped child population (usually calculated by applying the set of national prevalence rates, or minor modifications of them, to their school age population), it was reasonable to assume that this was the case nationwide.

5.6 Because the data collected during each state visit was to be used to make current, rather than projected, estimates of special education manpower requirements, data elements used by the MRPM to describe the movement of children into and out of each target group were dropped from the list of those to be collected. It was also decided to eliminate any further requests about the movement of personnel into and out of the field of special education, since a mathematical model to project manpower supply cannot be developed until after the completion of motivation studies.

## TASK 2—QUESTIONNAIRE MODIFICATION

### Objective

5.7 The purpose of the questionnaire modification was to produce a questionnaire that would contain a request for the data elements needed to calculate current manpower requirements, would be easily understood both by the interviewer and the interviewee, and would facilitate the analyst's compilation of the required information.

### Procedure

5.8 Representatives of the contractor and BEH met to discuss the wording and format of the questionnaire. The contractor then prepared the questionnaire for presentation to the National Center for Educational Statistics (NCES) and to the Bureau of the Budget (BOB) for their review and approval.

### Results

5.9 Slight modifications were made to the suggested definitions of the target groups and the educational programs, to increase their clarity. Requests for data about the number or rate of new entrants to and attritions from each target group were deleted from the questionnaire, as was the request for supply mobility information. The request for personnel employment data and estimates of unfilled positions was divided into two forms, and two additional education categories, doctorate and unknown, were added to the request for employment data. Although the breakdown of personnel employment data by education level is not needed to calculate manpower supply, these breakdowns were retained in the questionnaire at BEH's request.

5.10 The format of each matrix used to record the data was redesigned to make it easier for the analyst to use. The previous format had been oriented

toward the state level special education administrators who were not thoroughly familiar with the MRPM and its information requirements.

5.11 Finally, the instructions were reworded to assist the analyst in the collection as well as the recording of the data.

5.12 Before the 50-state survey could commence, the questionnaire required the approval of NCES. The questionnaire was submitted to and approved by NCES before it was submitted to and subsequently approved by BOB.

### TASK 3—MODEL DEMONSTRATION

#### Objectives

5.13 The objectives of the model demonstration (the actual application of the model in a real-world situation) were to demonstrate and document the validity and usefulness of the mathematical model, to correct any errors in the computer program of the model (REQMODEL), and to produce examples of the resulting computer output.

#### Procedure

5.14 Because of the unavailability at the state level of the detailed data needed, it was decided to demonstrate the model in a large city or school district having a large handicapped child population, a variety of educational programs for serving each category of handicapped children, and at least 4 years of historical data. A midwestern special school district satisfying all the criteria was chosen.

5.15 During the visit to that school district, detailed input data was collected for each academic year from 1964-65 through 1968-69. Data concerning the handicapped population (e.g., enrollments, attrition rates, and new entrance rates) was collected by age for six handicapping conditions<sup>1/</sup> and their associated education levels:

a. Trainable Mentally Retarded (TMR)

1. Elementary—ages 6-12
2. Secondary—ages 13-20

b. Educable Mentally Retarded (EMR)

1. Elementary—ages 6-12
  - (a) Regular
  - (b) Special instruction (SI)

---

<sup>1/</sup> Data for the Speech Impaired group was not sought because of the large size of the population and the limited amount of time allotted for the data collection.

- 2. Secondary—ages 13-20
- c. Orthopedically Handicapped (OH)
  - 1. Elementary—ages 6-13
  - 2. Secondary—ages 14-20
- d. Visually Handicapped (VH)
  - 1. Elementary—ages 6-12
  - 2. Secondary—ages 13-20
- e. Special Learning Disabilities (SLD): Ungraded—ages 6-14
- f. Auditorially Impaired (AI)
  - 1. Preschool—ages 5-6
  - 2. Elementary—ages 7-13
  - 3. Secondary—ages 14-20.

5.16 From each year's enrollment data, program weights were computed and inputted into the model. Since average attrition rates were calculated and held constant for the time period of the projection, the parameter values, representing the factors that would normally influence the changes in these rates over time, were assumed to be equal to 1.0, a value indicating "no influence." The average new entrance rates were similarly treated.

5.17 Since this special school district serves the total diagnosed population, and because there is neither a diagnostic waiting list nor an indication that there should be one, the participation rate of the handicapped child population in special education was set at 1.0 (= 100%).

5.18 Data related to personnel was also collected. The actual number of each type of personnel employed during each academic year was used to compute the existing personnel/pupil contact ratios (i.e., personnel input proportions). It was assumed, based upon discussions with the city's special education administrators, that the change in the ratios from the year 1964-65 to 1968-69 was due wholly to the influence of personnel input policy and/or practice. Thus, the parameter values representing this influence on each personnel/pupil contact ratio were computed as the average yearly change in each ratio. The parameters representing the influence of education technology on each ratio were set equal to 1.0, a value indicating "no influence." Additionally, desired personnel/pupil contact ratios were obtained to allow comparison of manpower requirements generated on the basis of desired conditions.

5.19 Using the 1964-65 data as a base, the target group populations, actual personnel input proportions, and resulting manpower requirements were projected for 4 years, to the 1968-69 academic year. Census data for the general child population was inputted into the model. Samples of each of the four sets of outputs from the model run are presented in Figures 1 through 4.

5.20 The first set of output (Figure 1) contains the projected information for the handicapped child population and its related parameters. Figures in the columns labeled "Number," "Attritions," and "Entrants" are actual numbers of children. Thus, referring to Figure 1, there were 5.10 children of age 10 projected as new entrants to the TMR Elementary target group, TG (1), during 1967-68 (entering officially at the beginning of the 1968-69 academic year). Of the 29.78 children of age 10 in TG (1) at the beginning of the 1968-69 year, 3.64 are expected to attrite during the year. These figures are calculated, using the attrition rates [P (1) represents the rate of return to normal school, P (2) represents the rate of dropping out due to other nonmortality reasons, and P (3) represents the rate of mortality] and the actual incidence rates (rate of actual diagnosis) for the handicapping condition (represented as "Large E"). For each target group, the parameter "Small E" is used to indicate whether the previous target group represents the same handicapping condition and a lower education level. As an indicator, it has only two possible values: (a) Small E = 1 if any new entrants to the lowest age level in the target group are from the previous year's graduates of another target group representing the same handicapping condition, e.g., entrants to age 13 in the TMR Secondary are graduates of TMR Elementary, age 12 the previous year, and (b) Small E = 0, otherwise.

5.21 The second set of output data (Figure 2) contains the general child population information. These figures were calculated for input to the model by using the school district yearly census information and interpolating by single year of age, based upon Federally developed proportions of children in each chronological age.

5.22 The proportion of children enrolled in each program and the projected personnel/pupil contacts (contained in the third set of output) are shown in Figure 3. The personnel figures in the first five columns represent the number of students that each personnel type can serve during the course of one academic year (i.e., the personnel/pupil contacts); the personnel figures in the sixth column represent the weighted average of these personnel/pupil contacts across all educational programs. Referring to the sample page (Figure 3), although a teacher of EMR Elementary group serves 10.798 children, only .9457 of the children served in the target group are enrolled in the program requiring that teacher (Program 1). Thus, in effect, for every 11.418 children enrolled from that total target group, one teacher of EMR Elementary is required. The 11.418 is the weighted average for the teacher. Similarly, although an assistant for EMR-SI serves 16.286 children, only .0543 of the children being served in the



FOR TG (11) = AUDITORIALLY IMPAIRED - ELEMENTARY  
AT TIME T = 4, THE VALUES OF THE INDEPENDENT VARIABLES ARE

AGE	NUMBER	ATTRITIONS	P (1)	P (2)	P (3)	ENTRANTS	LARGE E	COMPLETED PREV. TG LAST YR.
7	33.52	7.51	.2040000	.0200000	0	12.60	.0006895	20.917
8	32.93	7.11	.1510000	.0650000	0	7.26	.0003883	
9	34.96	10.77	.2310000	.0770000	0	9.76	.0005366	
10	24.85	7.63	.1940000	.1130000	0	4.53	.0002484	
11	15.84	8.49	.1600000	.0600000	0	3.48	.0001918	
12	20.53	10.04	.4000000	.0890000	0	6.23	.0003442	
13	14.26	6.92	.3330000	.1520000	0	6.45	.0003660	
TOTAL	176.89	58.49				71.22		

Small E = 1.00000000  
Medical Technology = 1.00000000  
Education Policy/Practice = 1.00000000  
Diagnostic Technology = 1.00000000  
Participation Factor = 1.00000000

FIGURE 1. TARGET GROUP POPULATION

FOR THE GENERAL POPULATION AT TIME T = 4, THE CENSUS FIGURES ARE

<u>AGE</u>	<u>NUMBER</u>
0	0
1	0
2	0
3	0
4	17383.00
5	18288.00
6	18510.00
7	18859.00
8	19287.00
9	18770.00
10	18807.00
11	18723.00
12	18663.00
13	18176.00
14	18066.00
15	17669.00
16	17335.00
17	16697.00
18	16317.00
19	15891.00
20	16070.00
21	0

FIGURE 2. GENERAL CHILD POPULATION INFORMATION

AT TIME T = 4, THE VALUES OF THE T/P RELATED INDEPENDENT VARIABLES  
FOR TG (11) - AUDITORIALLY IMPAIRED - ELEMENTARY ARE

PROGRAM TYPE DEFINITIONS - 1 - DAY SPECIAL CLASS

2 - DAY SPECIAL SPEC. INSTRU.

3 - COOPERATIVE SPEC. CLASS

4 - RESOURCE ROOM

5 - ITINERANT INSTRUCTION

WEIGHTED AVERAGE  
-----

PROGRAM TYPE  
-----

	1	2	3	4	5	
WEIGHTS (PROPORTION OF CHILDREN IN EACH PROGRAM)	.5280000	0	0	0	0	.720000

PERSONNEL INPUT PROPORTION FOR -

TEACHER OF DEAF - ELEMENTARY	7.000	0	0	0	0	13.258
ASSISTANT FOR DEAF - ELEMENTARY	21.000	0	0	0	0	39.773
HEARING CLINICIAN - ELEMENTARY	0	0	0	0	14.000	29.661

FIGURE 3. PROJECTED PERSONNEL INPUT PROPORTIONS

EMR Elementary target group are enrolled in Program 2; thus, for every 299.921 children enrolled from that total target group, one assistant of this type is required.

5.23 The final set of output presents the calculated manpower requirements, by personnel type. As shown in Figure 4, there were 75.19 teachers of the EMR, elementary level, projected as required during the 1968-69 academic year. These projected figures for the target group populations and resulting manpower requirements for the 1968-69 data year were compared with actual figures for that year. (See Tables 4 and 1, respectively.) In Table 4, differences between the projected and actual number of children of a particular age within a target group are due to the fact that actual attrition and entrance rates for any given year can vary greatly from average rates for the 4-year time span. In cases where individual rates vary so much, an average rate should be calculated from a minimum of a 5-year accumulation of data. However, it should be noted that the longer the special education program has been operating, the more stable its associated yearly attrition and entrance rates will be. Despite these differences between individual ages, the projected total number of children in each target group (the number used to determine requirements) is reasonably close to the actual total. The only exception to this is for the AI Preschool target group; the discrepancy here resulted from the very rapid rate of growth of the group during the last year of operation. In Table 1 (on page A-13 of this part), the comparison of the projected manpower requirements with the actual number of personnel employed is favorable.

5.24 Again, using the 1964-65 data as a base, a 4-year projection was done using desired personnel/pupil contacts. Comparison of the manpower requirements resulting from these two projections is shown in Table 5.

### Results

5.25 Two computer runs of the REQMODEL program were made, using the data collected in the midwestern special school district; on the basis of these runs, the validity of the model formulation was demonstrated. The feature of the model which allows a special education administrator to test the effect of differing assumptions, e.g., different personnel/pupil contacts, on the resultant manpower requirements was also demonstrated. Thus, the usefulness of the model was shown.

5.26 Projecting the target group population toward a known population enabled the programmer to catch and correct a few minor errors in the computer program, REQMODEL.

PERSONNEL TYPE	NUMBER REQUIRED
TEACHER OF TMR - ELEMENTARY	18.22
TEACHER OF TMR - SECONDARY	8.04
AIDE FOR TMR	18.13
TEACHER OF EMR - ELEMENTARY	62.46
PHYSICAL ED. TEACHER OF ELEM. EMR	2.44
LANG. DEVEL. TEACHER OF ELEM. EMR	7.31
SPEECH THERAPIST	16.24
TEACHER OF EMR - SI - ELEMENTARY	2.59
ASSISTANT FOR EMR - SI	1.29
TEACHER OF EMR - SECONDARY	65.20
DRIVER ED. TEACHER OF SECON. EMR	6.14
VOC. HOME EC. TEACHER OF SECON. EMR	2.12
PHYSICAL ED. TEACHER OF SECON. EMR	2.83
INDUSTRIAL ED. TEACHER OF SECON. EMR	2.12
TEACHER OF O.H. - ELEMENTARY	10.34
TEACHER OF O.H. - SECONDARY	2.68
AIDE FOR O.H. - ELEMENTARY	7.91
AIOE FOR O.H. - SECONDARY	1.64
PHYS. THERAPIST FOR O.H. -	2.44
PHYS. THERAPIST FOR O.H. - SECON.	33
OCCUP. THERAPIST FOR O.H. - ELEM.	2.74
OCCUP. THERAPIST FOR O.H. - SECON.	.29
TEACHER OF V.H. - ELEMENTARY	3.77
TEACHER OF V.H. - SECONDARY	2.25
TEACHER OF SPECIAL LEARNING DISABIL.	11.90
TEACHER OF AUD. IMP. - ELEM	13.34

FIGURE 4. PROJECTED MANPOWER REQUIREMENTS

TABLE 4  
COMPARISON OF 1968-69 TARGET GROUP POPULATIONS—PROJECTED VS ACTUAL

Age	TMR		EMR		O.H.		V.H.		S.I.D.		A.I.	
	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual
5	0	0	0	0	0	0	0	0	0	0	5.92	8
6	28.16	33	50.22	58	12.32	10	3.62	3	4.66	5	24.65	36
7	35.44	36	83.84	82	17.54	17	4.80	7	16.29	21	33.52	23
8	39.44	33	110.95	101	20.17	20	5.67	4	25.33	31	32.93	31
9	36.70	36	131.83	127	19.48	22	7.40	3	30.00	29	34.96	32
10	29.78	32	144.37	154	22.27	25	4.80	8	27.25	14	24.85	24
11	35.03	39	160.21	174	18.26	15	5.96	6	15.60	19	15.84	14
12	32.30	31	177.15	170	14.63	13	3.99	3	10.92	9	20.53	20
13	22.83	18	186.51	173	9.71	10	3.42	2	1.68	3	14.26	19
14	36.03	32	181.41	169	8.97	8	6.19	5	0	1	11.58	15
15	20.90	21	156.46	152	5.55	3	3.33	3	0	0	13.87	8
16	24.15	30	121.25	127	3.72	1	2.66	5	0	0	9.86	11
17	18.09	19	102.78	127	3.87	4	2.32	2	0	0	8.20	10
18	11.19	8	69.66	75	4.65	5	1.81	3	0	0	5.60	11
19	10.91	10	26.45	20	2.28	1	.26	0	0	0	2.88	2
20	.62	0	3.06	0	.43	0	0	0	0	0	0	0
Total												
Pre-School	0	0	0	0	0	0	0	0	0	0	30.58	44
Elementary	236.86	240	858.55	866	134.39	132	36.23	34	0	0	176.90	163
Secondary	144.72	138	847.58	843	29.48	22	19.98	20	0	0	52.00	57
Ungraded	0	0	0	0	0	0	0	0	131.73	132	0	0

**TABLE 5**  
**COMPARISON OF 1968-69 MANPOWER REQUIREMENTS BASED ON PROJECTED**  
**ACTUAL VS PROJECTED DESIRED PERSONNEL/PUPIL CONTACTS**

Personnel Type	Manpower Requirements		Personnel Type	Manpower Requirements	
	Projected Actual	Projected Desired		Projected Actual	Projected Desired
Teacher of TMR - Elementary	14.52	18.22	Aide for OH - Secondary	1.46	1.64
Teacher of TMR - Secondary	10.42	8.04	Physical Therapist for OH - Elementary	2.73	2.44
Aide for TMR	13.05	13.13	Physical Therapist for OH - Secondary	.50	.33
Teacher of EMR - Elementary	75.19	62.46	Occupational Therapist for OH - Elementary	3.25	2.74
PE teacher of EMR - Elementary	1.23	2.44	Occupational Therapist for OH - Secondary	.27	.29
Language Development teacher of EMR - Elementary	8.58	7.31	Teacher of VH - Elementary	3.01	3.77
Speech Therapist - EMR - Elementary	2.39	16.24	Teacher of VH - Secondary	2.32	2.29
Teacher of EMR-SI - Elementary	5.96	2.59	Teacher of Special Learning Disabilities	9.16	11.90
Assistant for EMR-SI - Elementary	2.86	1.29	Assistant for Special Learning Disabilities	2.58	2.92
Teacher of EMR - Secondary	50.15	65.20	Social Worker - SLD	.99	.91
Driver Education teacher of EMR - Secondary	1.00	6.14	Teacher of the Deaf - Pre-School	3.59	4.63
Vocational Home Economics teacher of EMR - Secondary	1.74	2.12	Teacher of the Deaf - Elementary	11.70	13.34
PE teacher of EMR - Secondary	1.22	2.83	Assistant for Deaf - Pre-School	1.78	2.32
Industrial Education teacher of EMR - Secondary	1.76	2.12	Assistant for Deaf - Elementary	4.34	4.45
Teacher of OH - Elementary	11.99	10.34	Teacher of Deaf - Secondary	1.68	1.37
Teacher of OH - Secondary	3.29	2.68	Hearing Clinician - Elementary	7.29	6.16
Aide for OH - Elementary	9.02	7.91	Hearing Clinician - Secondary	1.82	2.93

## TASK 4—DEVELOP FORMAT FOR ANALYSIS OF STATE DATA DEVELOPMENT POTENTIAL

### Objectives

5.27 The primary purpose of developing the state analysis format was to ensure the completeness and compatibility of the analysis of the information flow in each state, during the visit and in the resulting written report. The format was also developed to assist the analyst in the organization and order of his activities while visiting each state. Another objective was to increase the analyst's awareness of possible limitations in each state to the development of particular data elements.

### Procedure

5.28 An outline was prepared for the analysts, indicating the definitions and suggested sequence of activities and alternatives within those activities. Briefly, the outline directed the analyst to

- a. Review materials received from the state so as to become as familiar as possible with their definitions, programs, organization, etc.
- b. Explain the purpose of his visit to the administrator of the state special education agency; discuss with the administrator the advantages of improved information flow, including the ability to use more sophisticated management tools for planning purposes; and discuss with and motivate the administrator to use the MRPM as a tool.
- c. Discuss the organization of responsibility for special education and the current information flow, including interagency flow, with the staff of the state special education agency and of any other agency having the responsibility for educating a portion of the handicapped child population.
- d. Analyze the current status of the special education information system.
  1. Analyze current reports received from the LEA or other state agencies in terms of their frequency, content (data elements), format, and data source.
  2. Evaluate current methods of processing information and preparing output reports



3. Analyze current output reports in terms of function, content, format, and frequency.
- e. Analyze the development potential of needed data elements.
  1. Determine the existence and availability of detailed data elements to be included in the special education information system
  2. Determine the potential data sources.
- f. Determine the kind and amount of data processing (manual and automatic) support activities available for the development of a more detailed special education information system.
- g. Develop at least one written description of an information system needed to support the MRPM and other state planning and evaluating functions.
  1. Analyze new information flow requirements in terms of frequency, methods of transmitting data, new or modified report contents and formats, and data sources
  2. Analyze data processing requirements of the recommended special education information system
  3. Summarize the design of the recommended information flow and the associated special education information system
  4. Discuss potential non-model uses for the data elements contained in the recommended system
  5. Evaluate, in terms of manpower and equipment, the additional resources required by the state to implement the recommended information system.
- h. Collect and record in the questionnaire special education data that is currently available.
- i. Discuss findings and initial system development description with the administrator of the state special education agency.

Figure 5, which displays the alternatives within the primary data development activities as they are related to possible limitations to the data development, was also prepared for the analyst to assist him in performing activities 5-7 listed above.

5.29 Additionally, several staff meetings of the analysts were held to discuss the activity outline and the possible situations that the analyst could encounter during the course of his state visits, and to develop relatively standard answers to questions that would probably be asked of him. In order to test the state analysis format, the initial two state visits were made by four analysts working as a team; this allowed each analyst to gain confidence in the validity and applicability of the developed format.

### Results

5.30 Assisted by the state analysis format, each analyst was able to conduct a set of complete, efficient state visits, knowing that his analyses were compatible not only within the states that he visited but also with the analyses performed by other analysts.

## TASK 5—SCHEDULE AND ARRANGE ON-SITE VISITS

### Objective

5.31 The objective of this task was to plan carefully the on-site visits to the states so that excessive costs could be avoided and effective performance could be maintained by the survey team.

### Procedure

5.32 The chain of events followed in accomplishing this task was as follows:

- a. A letter was mailed from the Associate Commissioner, Bureau of Education for the Handicapped, to the principal education officer in each state, with a copy to the special education director. This letter briefly explained the objectives of the survey, introduced the contractor, and solicited the state's cooperation in the study effort. These letters were mailed in late July and August 1969.
- b. At the same time, preliminary schedules for visiting the states were prepared. These preliminary schedules were developed to ensure project efficiency and to minimize the time staff members would spend "on the road." The basic arrangement, with the exception of states near the contractor headquarters, was to schedule one staff analyst to visit each state for a

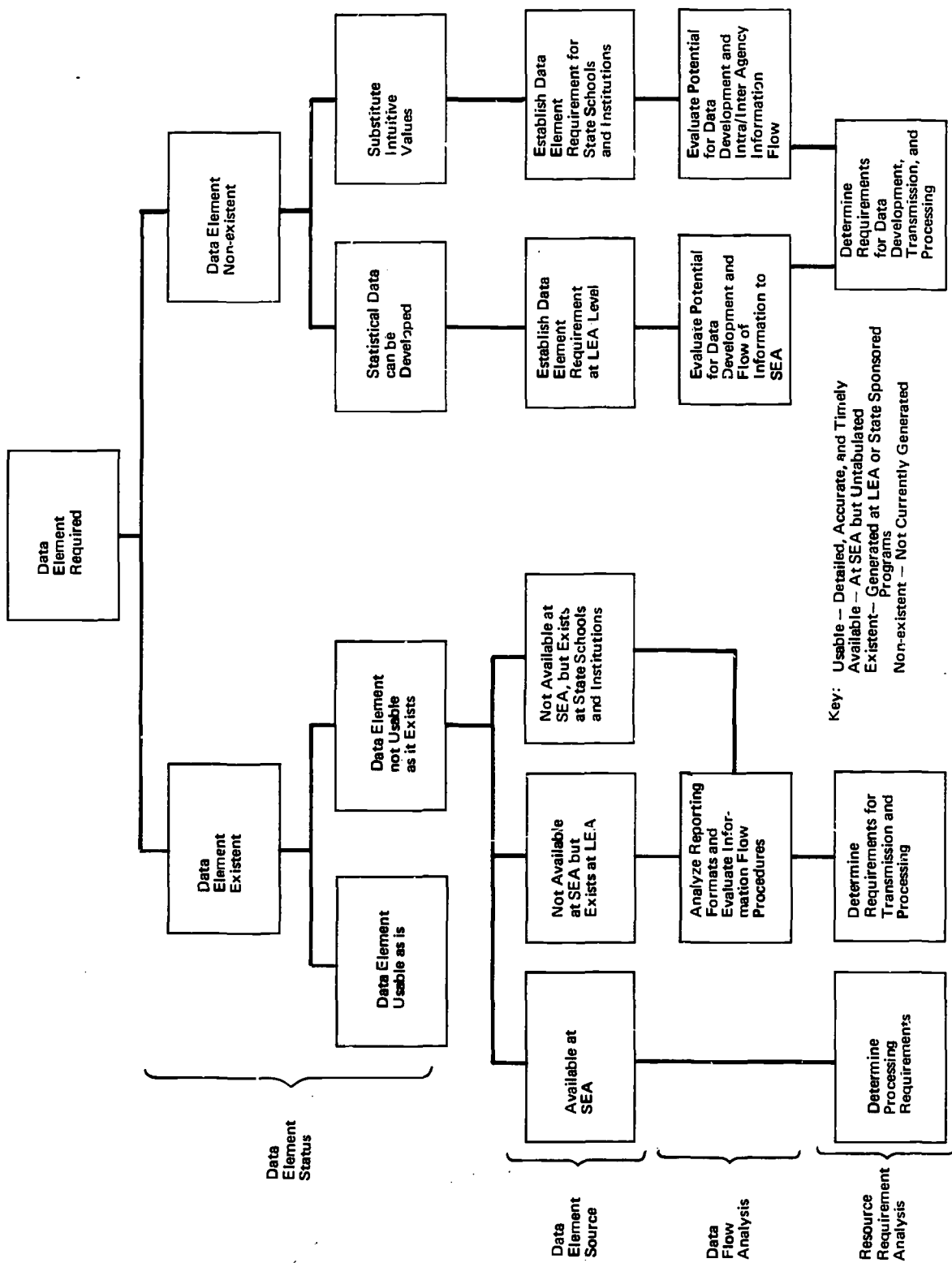


FIGURE 5. PROCEDURE FOR ANALYSIS OF STATUS AND DEVELOPMENT OF A DATA ELEMENT

maximum of 5 days. To reduce travel expenses, states were paired permitting the staff analyst to visit two states in a single trip. A one week pause was scheduled between each two weeks of travel to permit the staff member to consolidate his notes and outline his final report while the results of the visit were still fresh in his mind.

- c. Within a reasonable period after the mailing of Associate Commissioner's letter (usually 2 to 5 weeks), the staff member contacted the principal education officer by telephone and/or the special education officer in the states he was scheduled to visit. He again reviewed the survey objectives and answered any questions that may have been asked. A tentative survey schedule date was suggested by the staff member, and a mutually agreeable schedule date was established.
- d. A letter of confirmation of the scheduled survey date and a more detailed written explanation of the model and its objectives were then mailed out. (Initially the questionnaire that was used to collect current enrollment data was also forwarded; however, after a few visits it was determined that the advance questionnaire caused some misunderstandings or became misplaced, and this procedure was discontinued.)

### Results

5.33 These measures produced several benefits. Rapport was established between the state director and the contractor even before the actual visit. In addition, very few scheduling difficulties were encountered. Some reshuffling was necessary, at the states' request, but conflicts were avoided with only a minor effect on the schedule for completion of the survey task. Travel was less expensive as a result of the state-pairing method.

5.34 A problem did arise, however, which contributed to scheduling difficulties and caused an extension of the survey time frame. The delay in the Bureau of Budget approval of the questionnaire delayed the starting time for portions of the survey by 4 or 5 weeks.

## **TASK 6—CONDUCT ON-SITE VISITS TO STATE SPECIAL EDUCATION AGENCIES**

### Objective

5.35 The purpose of the survey was to review and analyze the capability and potential for utilization of the MRPM by the state agencies responsible for the

education of handicapped children. The survey included an analysis of:

- a. The capability of existing information flow processes to provide the necessary model input data
- b. The existing automatic data processing capability to process the model program
- c. The special education staff capability and desire to utilize the model.

### Procedure

5.36 The state visits usually proceeded through four phases: (1) the explanation of the model application, (2) the collection of currently available data, (3) the analysis of the existing special education information flow, and (4) assessment of the state capability to utilize the model.

5.37 The explanation of the model application was usually made to the special education director and, when possible, his staff and other agency heads who participate in the education of handicapped children. This discussion was directed at presenting the concepts of the model and the advantages of its utilization and evaluating the degree of understanding and acceptance of the model concept. It was not unusual for the survey staff member to give this explanation several times because of the difficulty of assembling all the appropriate personnel at one appointed time.

5.38 The data collection phase was not always distinguishable from the analysis of information flow activity. Frequently, while endeavoring to collect data through interviews with knowledgeable personnel, through the examination of reports, and through the extraction of data from records, some valuable knowledge was obtained about data sources, levels of information, and information flow.

5.39 However, the prime consideration of the data collection effort was to obtain data which could be used to calculate present manpower requirements. A questionnaire was developed for recording the following data:

- a. Age ranges by handicap group and education level
- b. Identification of the special education programs
- c. Enrollment by handicap group, education level, and education program
- d. Number of children diagnosed as needing but not receiving services
- e. Number of children referred and waiting for diagnosis
- f. Number of children from e. above expected to need special education

- g. Number of handicapped children not referred for diagnosis but believed to exist
- h. Personnel/pupil contact ratios by handicap group, education level, and education program
- i. Personnel employed by handicap group, education level, occupation, and employee education
- j. Personnel not in direct contact with handicapped children
- k. Unfilled direct contact positions for special education.

5.40 This information was sought from the special education agency and any other agencies that had a responsibility for the education of the handicapped. As described in Section III, certain limitations occurred which affected the extent to which some of the survey objectives could be accomplished.

5.41 Aside from the information developed while collecting data, the analysis of the existing data flow included:

- a. Review of the content, originating source, and utilization of existing forms
- b. Review of the present use of automated data processing, its availability for application to special education information systems, and its capability to process MRPM programs
- c. Interviews with cognizant special education personnel regarding factors which could affect the development of the model data elements
- d. Interviews with other agencies to determine their handicapped child educational responsibilities, their flow of information, and their willingness to cooperate with the state special education agency in the development of an overall handicapped child data base.

5.42 The assessment of the states' capability to utilize the model was an on-going process throughout the visit. Attitudes, manpower skills and availability, the status of the existing information flow, and organizational and legislative influences are all factors which were considered in this assessment.

### Results

5.43 As a result of the visits to the states by members of the survey team, and because of the excellent cooperation received from the state staffs, it was possible to realize several benefits from the visits. Many states became aware

of the need for additional data and have initiated studies to improve the information flow. The visits provided motivation for upgrading information requirements by identifying the uses and applications of the MRPM. As a direct result of conversations during the survey visits, 12 states have begun the collection of model data elements. Other states, before beginning detailed consideration of implementation steps, are awaiting state analysis recommendations, the model use instruction guide, and the model computer program.

5.44 The major tangible result of the state survey visits was the derivation of recommendations to implement an improved information flow that would provide the states with additional management information and also supply the data elements necessary to the implementation of the model for manpower projection. An estimate of the extent of assistance required to implement and maintain the information flow has also been prepared. These recommendations are presented in individual state analysis reports contained in Part D of this report.

5.45 The data collection effort did not produce data of the quality desired, because data was frequently not available, or if available, was not easily accessible at state levels. Age ranges by handicap group and education level were usually available, although in the case of some handicap conditions (TMR, and emotionally disturbed, for example), the age/level structure was artificial. Forty states were able to define the age ranges of their handicapped groups by education level.

5.46 Special education programs as such were not always definable in the state's educational structure. Residential and itinerant (including homebound instruction) programs were easily identifiable, but more subtle graduations were more difficult to distinguish. Twenty-eight states were able to identify their special education efforts by education program.

5.47 Aggregate enrollment data by handicap group was usually available for the public school system. For other state agencies, it was more difficult to obtain, unless each agency or institution was individually contacted. Private school data was rarely available, except where program approval was required or tuition publically funded. Breakdowns of enrollment data by education level and education program were occasionally available. Within these limitations, data representing enrollment by handicap group was almost completely available in 25 states and partially available in 18 more.

5.48 Data on the number of children on special education waiting lists was not usually available, and when available, the degree of confidence in its completeness was low. Usually, if waiting lists were maintained at the local level, this data was not transmitted to the state level.

5.49 Data on the number of children referred and waiting for diagnosis, the number of those children expected to need special education, and number of children not referred but believed to exist was practically non-existent, except as created by the application of prevalence rates to the general education enrollment. In most cases, the prevalence rates applied were the national rates or modifications thereof.

5.50 Personnel/pupil contact ratios were usually available. Some states have more refined ratios than others, but the general level of definition included ratios by handicap group. Thirty-six states had personnel/pupil contact ratios for each of their handicap groups, and 12 more had ratios for just their major handicap groups.

5.51 Personnel employment data by handicap group/occupation was not too reliable. Seldom was this data available by reference to a statistical listing. It was usually obtained by a review of state special education directories, classroom reporting forms, or an interpretation of related statistical data. As in the case of enrollment data, employment numbers from other state agencies or private schools was most difficult to obtain within the survey time frame. Information on employee education level was most incomplete, and when available, it usually came from an automated personnel data file printout. Only 26 states had reasonably complete data on numbers of special education personnel employed, while 16 more states had partial employment data.

5.52 Counts of personnel not in direct contact with handicapped children and counts of unfilled direct contact positions were data elements to which the state special education agencies could seldom respond because of lack of data from the local level. The data that was collected was extremely sketchy.

5.53 The effort to collect the foregoing data, while not as successful as anticipated, did contribute significantly to the other survey objectives however. The search for data revealed many of the data gaps and shortcomings in the basic information flow.

## **TASK 7—PREPARE STATE ANALYSES**

### **Objective**

5.54 The purpose of the state analyses was to formulate statements of data development potential in each of the states. Each analysis essentially involved the examination of the nature of available data, identification of data gaps, and preparation of reports on probable means for data development.

### **Procedure**

5.55 Each survey staff member prepared a state analysis report for each state he visited. The format for this report is briefly outlined below.



- I. Introduction — A brief review of the purpose of the MRPM and the objectives of the state survey.
- II. Summary — A short statement of the findings and recommendations contained in the report.
- III. Responsibilities for Special Education — A review of the state level organizational structure as it pertains to those agencies that have responsibilities for the education of handicapped children. This section provides an overview of the interagency complexities which may affect a unified handicapped child information flow.
- IV. Data Element Evaluation — An element by element evaluation of the current availability of those data elements necessary to the full application of the MRPM. The current data status, a determination of missing elements, an examination of reporting formats, and suggestions concerning missing data sources are discussed as they affect each data element.
- V. Processing Potential — An analysis of the computer hardware capability to process the MRPM computer program and the potential availability of the computer for special education use. Personnel capability to prepare inputs and utilize model outputs is also evaluated.
- VI. Additional Factors — This section contains a brief discussion of those factors, exclusive of data element availability, which can influence the implementation potential. This may include organizational, fiscal, legislative, or political considerations.
- VII. Recommendations — The data availability having been evaluated, the data gaps identified, and the processing potential determined, recommendations are presented not only for the development of specific data element information but also for general improvement of the existing information flows.
- VIII. Resource Requirements — An estimate is made of the manpower resources required both to implement and maintain an information flow capable of supporting the model. The implementation time frame is also estimated.

IX. Persons Interviewed — A list of the people interviewed during the survey visit.

5.56 Upon completion of the report draft, a copy was sent to the state special education director by registered mail with a copy to the state's chief education officer. Review by state special education personnel was encouraged, and it was requested that inaccuracies or other comments be noted and returned to the contractor. If no corrections were necessary, or if the state desired to make no comment, it was requested that receipt and review be acknowledged. This procedure was followed in an effort to eliminate inaccuracies, errors, or misunderstandings prior to finalization and publication of the report.

5.57 Upon receipt of comment from the state, the author corrected errors and evaluated the comments. If they were pertinent to the content, the comments were incorporated in the report.

Results

5.58 The response to the drafts of the state analysis reports indicated that the intent and content of the reports were well received. Many positive comments were received on the utility of the report as a guide to improving state information systems. Some states welcomed the report from an independent source as a means of reinforcing their need for improved information. Some errors were discovered and corrected. Several report updates were required as a result of information flow actions taken by states and reported to the contractor subsequent to the state survey visit. The reports therefore reflect the status of each state's special education system at the time of this Phase III report preparation, insofar as the state has reported it to the contractor. It was obvious that some states were immediately responsive to the study by beginning to take, or continuing to take, positive action to improve their special education information flows. Thirty-six of the states responded to the report by mail or telephone, and only one state was negative in its comment.

**TASK 8—ESTIMATE STATE REQUIREMENTS**

Objective

5.59 The objective of this task was to prepare estimates of current manpower requirements in accordance with available data. If the data available was adequate, an estimate of the nationwide special education manpower could be compiled.

Procedure

5.60 The data collected in Task 6 was used as a basis for the calculation of current manpower requirement estimates. Those specific data elements necessary to this calculation were:

- a. Enrollments, plus waiting lists when data were available, by handicap group, education level, and education program
- b. Personnel/pupil contact ratios, by handicap group, education level, and education program.

5.61 The personnel/pupil ratios were applied to the appropriate handicap group population enrollment data and the estimated personnel requirements were calculated. For example, a population of 3,268 EMR with a personnel/pupil ratio of one teacher to 12 children yields an estimated requirement for 272 teachers of the educable mentally retarded. However, because of the lack of waiting list data, most of the calculations were based on the enrolled population and are, as a consequence, underestimations of the personnel requirements.

### Results

5.62 As indicated in the discussion of the results of the data collection effort, the basis for the calculation of the estimated manpower requirements is not as satisfactory as was desired. The estimations are tabulated and compared with actual employment data in the tables contained in Part A, Appendix 1, of this report.

## **TASK 9—ESTIMATE MANPOWER SUPPLIES**

### Objective

5.63 The purpose of this task was to record the current supply of special education manpower on a state-by-state basis to the extent permitted by available data.

### Procedure

5.64 This task was performed in conjunction with the data collection procedure described in Task 6.

### Results

5.65 The results of this task are also discussed in Task 6, and the tabulated results are contained in Part A, Appendix 1, of this report.

## **TASK 10—DEVELOP REQUIREMENTS AND METHODS FOR STATE REPORTING OF MODEL RESULTS**

### Objective

5.66 Since the primary purpose for the development of the Manpower Requirements Projection Model was to enable BEH to obtain estimates of special education manpower requirements, the objective of this task was to outline the procedures whereby BEH would receive the estimates produced by the MRPM.

### Procedure

5.67 Ideally, BEH should receive a yearly estimate of manpower requirements from each state. Practically, however, some states may not apply the model at all and some may choose to apply it infrequently; thus, the only procedure outlined was for the transmission of a copy of the REQMODEL program output from a state to BEH.

5.68 A statement, suggesting to each state that a copy of the REQMODEL program output be sent (on a voluntary basis until it is made mandatory) to the Division of Training Programs, BEH-OE, HEW, is included in Section VII, page B44, of the Special Education Staff Users Guide (Part B of this report) and in Section II, page C-2, of the MRPM-Technical Documentation of the Computer Program (Part C of this report).

### Results

5.69 Although the methods for the state reporting of MRPM results have been outlined, any description of the results must await the initial transmissions.

## TASK 11—ESTIMATE TEACHER TRAINER REQUIREMENTS

### Objective

5.70 The purpose of this task was to demonstrate the capability and validity of the Teacher Trainer Model presented in Section IV of the Phase I Report<sup>2/</sup> using actual data or data determined by one or more experts in the field of special education manpower training.

### Procedure

5.71 The theory of the Teacher Trainer Model was demonstrated in Phase I by using simulated data to demonstrate the following options:

Option 1. Calculation of the teacher trainer requirements on the basis of a specified number of required enrollments.

Option 2. Calculation of teacher trainer requirements on the basis of a given number of students who require educational services and a conception of a model program area in terms of numbers of faculty.

Option 3. Calculation of the teacher trainer requirements on the basis of a program area defined in terms of a maximum number of enrollments.

5.72 The concept of the model as presented in the Phase I Report has been reviewed and the contractor has confirmed the theoretical validity of the model. Adequate data for actual testing was not available during the scheduled time frame and constraints of this phase of the contract.

---

<sup>2/</sup> B.G. Bruce, M.J. Allard, B.A. Johns, F.L. McCoy, Study of the Need for Educational Manpower for Handicapped Children and Youth-Phase I Report, 13 December 1968.

## Results

5.73 Although actual data has not been applied to this model, the logic has been demonstrated using the simulated data. It is suggested that BEH develop actual input data from ongoing programs as a further test of the model applicability.

## TASK 12—ESTIMATE RESEARCH REQUIREMENTS

### Objective

5.74 The purpose of this task was to develop and demonstrate a model to project special education research personnel requirements.

### Procedure

5.75 Previous attempts (described in the Phase I Report<sup>3/</sup>) to develop a model to project special education research personnel requirements were reviewed jointly by representatives of BEH and ORI. In addition, joint discussions about the problems involved were held and further attempts were made to formulate a straightforward relationship between research expenditure levels and research personnel requirements.

### Results

5.76 The conclusion reached was that a model to project special education research personnel requirements would be very complicated and difficult to develop. In essence, it would have to be a large scale simulation model that could account for (a) the categorization of different types of research, (b) the different types of research personnel (including their degree level) required for various types of research, and (c) the relationship of numbers of researchers required for various levels of funding. Thus this task is recommended for further action by BEH.

## VOLUNTARY TASKS

### Objectives

5.77 The purpose of the first voluntary task was to determine the attitude of each state special education agency toward collecting employee motivation information from local education agencies and other state education agencies employing special education personnel.

5.78 The purpose of the second voluntary task was to determine what type of financial assistance (similar to PL 85-926) each state offers to train special educators.

### Procedure

5.79 During the course of each state visit, the analyst discussed the voluntary tasks with the administrator of the state special education agency and with some local agency personnel. When discussing the first task, the analyst

---

<sup>3/</sup> Ibid.

suggested the use of standardized entrance and exit interview formats, a copy of which could be sent to the state agency for compilation if the local or other state agency did not want to tabulate such data for their own use. For the second task, state assistance was defined as funds contained in the state education agency's budget that are to be used specifically to train special educators, rather than funds available to train all educators.

### Results

5.80 Almost all the state level administrators of special education were in favor of collecting employee motivation information such as (a) reason for entering or leaving the field of special education, (b) previous or subsequent employment occupation, (c) source of new entrance or destination if leaving, and (d) employee availability for full or part-time work in the future. Since many of the local education agencies and other state agencies already conduct entrance and exit interviews in which they collect similar types of information, it should not be difficult for BEH to suggest a standard format or the basic framework of one.

5.81 Few states offered their own financial assistance to train special educators. The following is a list of the states that do offer assistance and the description of their programs, as discussed with each analyst during his visit to the state.

- Alabama. One of the functions of the Program for Exceptional Children and Youth is to administer the state's in-service special education training program and PL 85-926 for special education trainees. No other information was given to the analyst.
- California. At present, the state provides grants for summer scholarships to special education teachers working toward clearing their credential. The limitations are that the maximum reimbursement rate is \$50/unit, that the recipient must have been employed as a teacher in the state the previous year and must contract to teach special education in the fall, and that teachers of the Emotionally Handicapped are not eligible. During 1969, 6,875 grants were awarded.

For 1971, the state hopes to upgrade the program to include teachers of the Emotionally Handicapped, to include special education teachers who wish to upgrade their skills, to allow grants of up to \$50/unit for a maximum of 5 years, and to consider the grants as a loan, which the teacher may repay by working 1 year for each summer for which he received funds, beginning immediately after the summer (or the last summer if the

teacher is also in full-time training during the academic year) for which funds were granted.

- Delaware. The state provides scholarships in the fields of medicine, law, and special education (at the undergraduate and graduate levels) for Delaware residents attending college outside the state (because of the limited capacity of the state university). In addition, the University of Delaware offers scholarships to teachers of the mentally retarded and other special education teachers for graduate level study, and offers a tuition-free (the only charge is \$10/person for room and board) summer course for special education teachers.
- Florida. Three scholarship programs are conducted, using state funds. The first, instituted in 1968-69, is for college juniors or seniors who are majoring in Special Education. The funds granted to these students, \$600/year, are considered as a loan which may be repaid in cash (through the standard loan procedure) or by working in the field of special education in the state for 1 year for each year of funds granted. During the first year of operation, this program funded 69 persons. For a teacher who is working in special education but is not yet certified, the second program provides reimbursement of the costs for courses required for certification. During the 1968-69 academic year, 553 of these scholarships were awarded. The third program grants up to \$60/quarter hour or \$80/semester hour to certified special education teachers who attend summer sessions to obtain advanced training. During the summer of 1969, 65 teachers received funds.
- Illinois. When the mandate to place all diagnosed children in special education was introduced in 1965, a program was initiated to provide scholarships for the training of special education personnel.
- Ohio. Up to \$45,000 of state financial aid is available for special education teacher training.
- Virginia. State aid is provided to non-endorsed teachers (teachers who are certified in regular education but not endorsed in a special education field) for tuition costs

incurred while they are working toward special education endorsement. This aid is limited to \$20/semester hour.

- West Virginia. The state has proposed that \$116,000 be made available, beginning July 1970, for the retraining of regular teachers to become special education teachers. The funds in this proposed program would provide either for traineeships at a college or university or for extension service from a college or university.



## VI. RECOMMENDED FURTHER ACTIONS

6.1 The submission of this Phase III report represents the completion of contractor efforts in the development of the Manpower Requirements Projection Model and the analysis of the status and potential of information availability in the states. The overall reaction of the states to utilization of the model and establishment of the necessary flow of information has been favorable, but considerable additional effort is necessary if the initial interest and motivation are to be utilized by BEH in implementing the use of the MRPM. This section presents recommendations for BEH actions considered appropriate to implementation of the current findings. It also presents recommendations for further related research intended to build upon the concepts developed in this study, as a means of further improving BEH capability to perform its overall responsibilities in education for the handicapped.

### IMPLEMENTATION OF THE MANPOWER REQUIREMENTS PROJECTION MODEL

6.2 Part B of this report, the Special Education Staff Users' Guide, provides a description of the purpose and benefits of the MRPM, requisite data elements, general method of operation, and steps necessary for development and implementation. This material is presented in a non-technical context so that it can be most readily utilized by the special education administrator or staff personnel responsible for decisions regarding adoption and utilization of the MRPM within a state. Additional technical documentation regarding the computer program is presented in Part C for those individuals specifically responsible for this aspect of the model. Taken together, these two documents provide all of the written guidance and technical descriptions necessary for independent implementation of the model by each state.

6.3 However, given 50 disparate special education agencies, different in environment, experience, capability, and resources, it would be highly optimistic to expect implementation to occur readily and efficiently on the basis of written documentation only, no matter how complete and persuasive that documentation might be. For this reason, it is suggested that BEH consider the following actions as means of encouraging and ensuring the implementation of the model in the most appropriate and effective manner.

#### State Implementation Demonstration

6.4 As noted previously in this report, the validity of the model formulation and the feasibility of its use by state special education agencies were demonstrated during the earlier stages of Phase III. The results of this demonstration were discussed with the individual state personnel during the state visits and were generally accepted as an indication of the validity of the model. The applications and advantages of the model also were discussed with the state personnel; the discussions generally produced an appreciation of the benefits of model implementation.

6.5 It is important to note, however, that the scope of this study did not permit a test at the state level, i.e., using state data and under the observation of state personnel. As a result, state agencies do not have an example of model implementation that they can directly correlate with their own needs or environments. Furthermore, a one-time test of a system using historical data is not as informative or convincing as an actual extended application using current data. For these reasons, it is recommended that a state-level demonstration of the model be performed in order to present more convincingly the advantages of the MRPM to the individual states. At the same time, this demonstration will permit the identification and correction of minor problems that might arise in an actual implementation effort at the state level. In brief, such a demonstration would

- a. Provide an example of model application as an increased incentive for application by other states.
- b. Permit evaluation of the actual time frame and costs of implementation as compared to these estimated in this report.
- c. Provide guidance to subsequent states regarding the approaches and possible pitfalls related to development of the information flow procedures necessary for support of the model.

6.6 A number of criteria may be considered by BEH in selecting or proposing the state (or states) for the demonstration. In general, since at least partial funding by BEH is anticipated, one of the criteria might be the overall cost of the demonstration effort. A second criterion would be the availability of data at the state level, in order to provide results within a reasonable period. That is, for demonstration purposes, it would be wise to choose a state in which results

can be shown in 1 year rather than 2 or 3 years, as might be the case in states requiring considerable improvement in the availability of data. Data availability is presumably the most stringent determinant of the time required to demonstrate the model, since other resources (e.g., personnel or ADP support) could be provided, for the period of the demonstration, by some special means.

6.7 Prerequisite to the selection of a demonstration state are the interest, concurrence, and cooperation of the state special education agency staff, as well as of those in other elements of the state education agency that might be involved. In addition, it would be preferable (a) that the state not have too large a population, since this adds excessive data volume not relevant to the demonstration; (b) that it have a well-established state educational organization so as to minimize the number of locals that must be involved in the demonstration; (c) that it have an active and comprehensive reporting system between local and state special education agencies; and (d) that it have no legislation that would constrain the identification of the handicapped child population beyond those numbers that the state has the capability to serve, as this constraint poses an arbitrary restriction hampering the application of the model findings.

6.8 Based on the state analyses performed in this study, it should be possible for BEH to identify states having these characteristics. Actual conduct of a state demonstration, therefore, is primarily dependent on the extent to which BEH wishes to motivate and support the demonstration, rather than on the availability of eligible states.

#### Regional Implementation Workshops

6.9 As noted previously, much was done during the state visits to develop an interest in each state in the improvement of its special education information system and in implementation of the model. The individual state analysis reports provided in Part D, and the users' guide and technical documentation provided in Parts B and C, are further extensions of this effort to encourage use of the model by the states. However, while these efforts set the stage for implementation by providing acceptance of the MRPM concepts and presenting the basic working tools, the actual initiation of the implementation effort in most states will require more direct contact with, and guidance to, those state personnel directly responsible for the implementation decision and the subsequent implementation effort. Included among these personnel are several levels within the special education staff (e.g., the director, the handicap specialist, and the staff analyst responsible for implementation), as well as representatives of other state agencies responsible for either education of the handicapped or support to the special education staff with regard to data processing or similar assistance.

6.10 To provide this direct contact with state personnel, it is recommended that BEH sponsor and present regional implementation workshops or seminars designed to further familiarize the state special education staff, and others concerned, with the benefits and requirements of improved information flow and MRPM applica-

These sessions should seek to involve the state personnel in the use of the system by encouraging discussion of the potential uses and possible problems specific to each state. BEH personnel can thus point out uses for MRPM and help to solve problems for each state, without the expense and time required for separate visits to each state.

6.11 BEH has utilized the regional workshop for other applications. The general approach for this application would be the same as that used previously. In this instance, the presentation could include the detailed explanation of the data requirements, the methodology for input to the model, the simulation potentials, and the interpretation of the output reports. Material provided in Parts B and C of this report can be used as the instructor's manual or textbook for the workshop. The workshops should also include a discussion of the sources of technical assistance available to the states, e.g., BEH, other states further advanced, or contractor support. The arrangements for obtaining this assistance can then be left to the individual states.

#### BEH Support of State Activities

6.12 The state survey visits, and the subsequent opportunities afforded the states to review the drafts of their respective state analysis reports, have created an interest in information improvement in many states that has been made evident not only to the ORI staff but also to members of BEH. It is essential that BEH take advantage of the impetus provided by this interest by seeking additional means by which it can encourage and support information activities within the state special education agencies. These activities should not be confined to the MRPM and its supporting information system; rather, they should pertain to the collection and application of data for improved management of all state special education functions.

6.13 In addition to providing technical guidance and assistance to the states, as exemplified by the documentation in Parts B, C, and D of this report, or by implementation of the preceding recommendations, BEH must also point out to the states the sources of funding available to support their information efforts. In this regard, BEH should at least ensure that the states are aware that the portion of Title VI funds allocable to administration can also be applied to the development or improvement of the information flow or utilization within the state. Further assistance could be extended by BEH either through the provision of supplemental grants specifically for information development or through Federal sponsorship of research contracts intended to develop findings of potential application for all states.

#### SUGGESTED FURTHER RESEARCH

6.14 One of the products of this study is the demonstration to the states of the benefits for special education management that may be obtained from an improved information flow and the use of planning tools such as the Manpower

Requirements Projection Model. This result illustrates the potential value to both Federal and state agencies of further research and development efforts related to the management of special education at the state level. There are, of course, several directions that such research might take; however, as a result of its direct contacts with the individual state special education agencies, ORI believes that Federally-sponsored research in the three areas discussed in the following paragraphs would be of significant value to the management and delivery of education for the handicapped.

#### Generalized Special Education Information Systems

6.15 The survey of state special education agencies demonstrated a strong need for improving the flow of information between local and state agencies and among various state agencies. Although such systems need not be complex or highly sophisticated, their design and implementation for each state may well require skills and resources beyond those readily available to the special education agency. Further, although each state agency is perhaps unique in its information requirements when considered in full detail, there are common characteristics among states that would permit the use by many states of one approach to satisfying an information requirement. In addition, only a slight modification of this basic approach might then permit it to be applied at several other states.

6.16 The above situation, i.e., a recognized need for improved information systems, a shortage in available resources, and a generally common set of information requirements and approaches, suggests that consideration be given to developing one system of general use to all users—that is, the design of a generalized special education information system that would provide each state with the basic mechanism for the functions of data collection, data manipulation, and output report preparation, but would still be sufficiently flexible in its structure so that individual variations in state requirements could be readily accommodated. In this respect, the system would be similar in concept to the Manpower Requirements Projection Model, which provides each state with the same data collection, computational, and reporting procedures, but also permits each state to maintain its individuality regarding target group definitions, contact ratios, and other data elements or projection requirements. At the same time, this generalized concept would avoid the obstacles encountered by many short-lived system development efforts requiring standardization among all users to comply with system capabilities and specifications.

6.17 It is therefore recommended that, as a first step, BEH perform a study to evaluate fully the feasibility, potential benefits, and costs of such generalized special education information systems. Two basic generalized systems appear initially advisable: (a) a pupil accounting system for use by those states that maintain individual pupil records at the state level and (b) a data summary system for the use of those states in which local agencies are required to submit only

specified data summaries. The development of such generalized systems would have the advantages of

- Economy, because the development cost of the basic systems would not have to be repeated for each user.
- Encouraging states to upgrade their special education information systems, because of the availability of this additional assistance.
- Expediting MRPM implementation, because of the improved potential for the availability of the necessary supporting information flow.

#### Development of a Manpower Supply Model

6.18 The Manpower Requirements Projection Model developed in this study provides the state special education agency with the capability of projecting manpower needs by skill type and year of need. A companion manpower supply model would provide a similar capability for projection of available manpower to meet these needs. The utilization of both of these manpower planning tools would greatly assist the state special education director in the development of policies and practices necessary to match supply with demand. The information provided by the model for each state would also be useful at the national level in the evaluation of the needs and priorities of Federal programs designed to influence the supply of special education manpower. Effective use of the teacher trainer model developed in this study also would be enhanced by the availability of projections of manpower supply.

6.19 Preliminary work on this model was undertaken during this study, but the development of the model was hampered by the lack of sufficient information regarding motivational and mobility factors for special education students and practitioners. However, Phase IV of this current BEH study should provide additional information on these factors; this information may then be used as a basis for establishing supply parameters and determining their initial values. Completion of Phase IV may therefore make it feasible for BEH to conduct further research in the development of the manpower supply projection model.

#### Development of Diagnostic Capabilities

6.20 During the state visits it became obvious that very few states had diagnostic capabilities sufficient to identify most of the children in the state who should receive special education services. As a result, the true total special education service requirements in a state were seldom determinable except by estimation, and then generally by the use of national prevalence rates. Among the causes for this deficiency were the lack of funds for operating diagnostic facilities and paying qualified diagnostic personnel, and the lack of sufficient numbers of these trained personnel. BEH should consider the establishment of



a cooperative program with other Federal agencies (e.g., PHS) and the appropriate state agencies, to initiate and support diagnostic centers that would perform both medical and educational diagnosis and thus would identify those children requiring special education assistance. A corollary requirement would be the development of a diagnostic reporting system that would report identified handicapped persons to appropriate state and local agencies (i.e., special education, health, vocational rehabilitation), so that the total identified handicapped child population may be considered when making plans to serve that handicapped population.

## APPENDIX 1

### STATE DATA SUMMARIES

#### INTRODUCTION

1.1 One objective of the state survey was to collect data necessary for estimating current special education manpower requirements. A questionnaire was developed to collect this as well as other data to provide the Bureau of Education for the Handicapped with information pertaining to the unidentified handicapped child population, the educational background of special education employees, indirect contact personnel position, and unfilled direct contact positions. A format for recording this data as it was collected was developed by ORI and approved by the Bureau of the Budget.

#### REVIEW OF DATA AVAILABILITY

1.2 The data collection effort did not produce all of the data desired, generally because data was frequently unavailable at state special education levels, or if available, was not easily accessible. Although previously discussed in the description of Task 6 results (Section V of this Part A), the availability of individual data elements may be summarized as follows:

- a. Age ranges by handicap group and education level were usually available, although in the case of some handicap conditions (TMR and emotionally disturbed, for example), the age/level structure was artificial.
- b. Special education programs as such were not always definable in the state's educational structure. Residential and itinerant (including homebound instruction) programs were easily identifiable, but more subtle gradations were more difficult to distinguish.



- c. Aggregate enrollment data by handicap group was usually available for the public school system. For other state agencies, this data was more difficult to obtain unless each agency or institution was individually contacted. Private school data was rarely available, except where program approval was required by the State Special Education Agency and tuition was publicly funded. Breakdowns of enrollment data by education level and education program were occasionally available.
- d. Data on the number of children on special education waiting lists was not usually available; when it was available, the degree of confidence in its completeness was low. Usually, if waiting lists were maintained at the local level, this data was not transmitted to the state level.
- e. Data on the number of children referred and waiting for diagnosis, the number of those children expected to need special education, and number of children not referred but believed to exist was practically nonexistent except as created by the application of prevalence rates to the general education enrollment. In most cases, the prevalence rates applied were the national rates or modifications thereof.
- f. Personnel/pupil contact ratios were usually available. Some states have more refined ratios than others, but the general level of definition included ratios by handicap group.
- g. Personnel employment data by handicap group/occupation was not too reliable. This data was seldom available by reference to a statistical listing; instead, it was usually obtained by a review of state special education directories, classroom reporting forms, or an interpretation of related statistical data. As in the case of enrollment data, employment numbers from other state agencies or private schools were most difficult to obtain within the survey time frame. Information on employee education level was quite incomplete and, when available, it usually came from an automated personnel data file printout.

- h. Counts of personnel not in direct contact with handicapped children and counts of unfilled direct contact positions were data elements to which the state special education agencies could seldom respond because of lack of data from the local level.

#### ESTIMATION OF CURRENT MANPOWER REQUIREMENTS

1.3 The data collected in Task 6 was used as a basis for the calculation of current manpower requirement estimates. Those specific data elements necessary to this calculation were:

- a. Enrollments plus waiting lists when data was available, by handicap group, education level, and education program
- b. Personnel/pupil contact ratios, by handicap group, education level, and education program.

1.4 The personnel/pupil ratios were applied to the appropriate handicap group population enrollment data and the estimated personnel requirements were calculated. These personnel estimates for each state are shown in the Special Education Personnel Estimation Requirements/Employment Comparison Table contained in this appendix.

#### STATE DATA SUMMARIES

1.5 The data that was collectible during the survey visit to state special education agencies is presented separately for each state in a series of tabulations in the following pages of this appendix. The content of each state set of tabulations is as follows:

- a. Overview of Special Education Programs

This table contains a breakdown, by handicap category, of the age ranges for each of the education levels that the state recognizes. It also gives an indication by handicap category of the education program available in the state.

The Handicap Code shown in the left-hand column serves as a cross-reference between this table and the other tables that apply to each state, as well as to the tables of data for other states. Thus, for instance, H9 refers to the educable mentally retarded category for education level, education program enrollment, and personnel/pupil contact ratios within a state set of tables as well as to other states data.

b. Enrollments in Special Education

The tabulation presents the special education enrollment by handicap category, education level (when available), and education program. Any available waiting list data is also shown on this tabulation.

c. Personnel/Pupil Contact Ratios

This table shows, for each handicap category, the personnel/pupil contact ratios by education level (when available) for each occupation directly involved in the instruction of the children.

d. Special Education Personnel Estimated Requirements/  
Employment Comparison

These tables show both actual employment and estimated requirements by special education occupation. An "x" in the column headed "Certified" indicates that the state has established formal special educational/experience criteria that personnel must satisfy before they can be certified to perform that job function. A blank in this column indicates that the state has not acknowledged formally on special education certification requirements.

#### LIMITATIONS TO THE CALCULATION OF ESTIMATES

1.6 Data, when available, was either entered by personnel education level or by total for each personnel type and education level served, depending upon the detail contained in the source material. The estimated employment was calculated only for total personnel by personnel type and education level served.

1.7 The calculation of personnel requirement estimates was based solely on the correlation of collected data. For example, if the enrollment in a handicap category was known by education level and the personnel/pupil contact ratio was known for that level, an estimate of manpower requirements by education level was made. If enrollment was known only by total handicap category and the personnel/pupil contact ratio applied only to the total category, an estimate for the total category was made. However, if enrollment was by total category and personnel/pupil contact ratios were provided for different education levels, no estimate was made, since it was not feasible to make an assumption as to the content of the total enrollment by education level.

1.8 Estimates have been calculated whenever possible, even though enrollment data was not complete. Such estimates are identified by footnote.

## State Name: Alabama Overview of Special Education Programs Data Period 1968-1969

Handicap Code	Handicap Category 1/ 	Education Level (Age Ranges)					Education Program					
		Preschool	Elementary	Secondary	All Grades	Institution All Grades	Residential Special Class	Special Schools	Day Special Class	Cooperative Class	Resource Room	Itinerant
H-1	Blind		6-12	13-21	6-21		X		X		X	
H-2	Partially Sighted		6-12	13-21	6-21				X		X	
H-3	Visually Handicapped											
H-4	Deaf	3-5	6-12	13-21	6-21	6-23	X		X			
H-5	Hard of Hearing	3-5	6-12	13-21	6-21				X			
H-6	Hearing Handicapped											
H-7	Emotionally Disturbed	3-5	6-12	13-21					X		X	
H-8	Mentally Retarded											
H-9	EMR		6-12	13-21	4-26		X	X	X	X		
H-10	TMR		6-12	13-21	5-26	4-21	X	X	X			
H-11	MR (Custodial, Severe, Institutional)											
H-12	Speech Handicaps					6-21						X
H-13	Speech and Hearing											
H-14	Special Learning Disabilities					6-21			X	X	X	
H-15	Brain Injured											
H-16	Physically Handicapped					6-21			X			X
H-17	Homebound					6-21						X

Alabama

1/ If no entry is shown, category is not applicable to the state

State Name: Alabama		Enrollments In Special Education				Data Period 1968-1969			
Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List	
			Residen- tial Special Class	Special Schools	Day Special Class	Itinerant	Estimates of Believed To Exist		
H1	Blind	Elementary			8				
		Unspecified	202					901	
H2	Partially Sighted	Elementary			30				
H4	Deaf	Elementary	396		32				51 *
		Secondary	55		32			5406	
H5	Hard of Hearing	Elementary			14				
		Secondary			14				
H7	Emotionally Disturbed	Elementary			26			18020	
H9	Educable Mentally Retarded	Preschool		27					
		Elementary		227	4130				
		Secondary		88	1806				
		Unspecified	304					18020	200 *
H10	Trainable Mentally Retarded	Elementary			420			2703	
		Secondary			240				
H12	Speech Handicaps	Unspecified				9000		31535	
H14	Special Learning Disabilities	Unspecified			50			9010	
H16	Physically Handicapped	Unspecified			266			4505	
									Alabama
* Data for institutions only									

Alabama

State Name: Alabama				Personnel/Pupil Contact Ratio		Data Period 1968 - 1969						
Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types						Resource Room	Itinerant	
				Residen- tial Special Class	Special Schools	Day Special Class	Coopera- tive Special Class					
H1	Blind	Teacher	Elementary	1/5		1/8						
			Secondary	1/15		1/12			1/12			
H2	Partially Sighted	Teacher	Elementary			1/10						
			Secondary			1/15						
H4	Deaf	Teacher (Deaf and Severely Hard of Hearing)	Preschool			1/5						
			Elementary	1/8		1/8						
			Secondary	1/8		1/12						
H5	Hard of Hearing	Teacher (Deaf and Severely Hard of Hearing)	Preschool			1/8						
			Elementary			1/10						
			Secondary			1/15						
H7	Emotionally Disturbed	Teacher	Preschool			1/5						
			Elementary			1/6			1/10			
			Secondary			1/8			1/12			
H9	Educable Mentally Retarded	Teacher (Mentally Retarded)	Elementary	1/10	1/15	1/10						
			Secondary	1/10	1/15	1/10	1/15					
H10	Trainable Mentally Retarded	Teacher (Mentally Retarded)	Elementary	1/10	1/10	1/10						
			Secondary	1/10	1/10	1/10						
H12	Speech Handicaps	Speech Therapist	All Grades							1/75		
H14	Special Learning Disa- bilities	Teacher	Elementary			1/10			1/15			
			Secondary			1/15	1/15		1/15			
H16	Physically Handicapped	Teacher	Elementary			1/10						
			Secondary			1/12					1/8	
			All Grades									

Alabama

State Name: Alabama		Special Education Personnel Estimated Requirements/Employment Comparison 1/												Data Period 1968- 1969		
Occupation		Degree Level	Total	Education Level												
				Preschool		Elementary		Secondary		Ungraded		Unspecified		Total		
T=Teacher	A=Aide	Th=Therapist	O=Other	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	
T/Blind							1									1
														6		6
							1	1					2/	6	1 3/	7
A/Blind														2/	6	6
																1
																1
T/Partially Sighted					2/	2	3	4/							3 3/	2
						2										
							28							3		31
T/Hearing Handicapped																26
						1		6								7
									7				2/	1	2/	8
Th/Hearing Handicapped					2/	3	59	62	11	7				2/	10	70 3/
														3		82
													2/	3		3
O/Vocational Teacher for Hearing Handicapped																3
														9		9
														2	2/	2
O/Psychologist for Hearing Handicapped													2/	11	2/	11
														1		1
												2/	1	2/	1	1
Alabama																
1/ Based on enrollment data only (no waiting list data available)																
2/ Calculations cannot be made due to missing data																
3/ Calculations incomplete due to missing data																
4/ Employment data unavailable																
Uk - Unknown																

Alabama

Uk - Unknown

State Name: Alabama

Special Education Personnel Estimated Requirements/Employment Comparison 1/

Data Period 1968-1969

Occupation T=Teacher Th=Therapist O=Other	Degree Level	O Required	Education Level										Total	
			Preschool	Elementary	Secondary	Ungraded	Unspecified	Estimated		Employed		Estimated		
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed		Esti- mated
O/Audiologist for Hearing Handicapped	BA	X										1		1
	Total										2/	1	2/	1
	BA	X									2		2	2
	MA	X									4		4	4
	Total			4 3/4							2/	6	4 3/4	6
T/Mentally Retarded	Uncert.					25								55
	BA	X		30		68					5			311
	MA	X	2	238		51					8			123
	Uk	X		62		11								31
	Total		2	470 3/4	350	210 3/4	155	30	11		710 3/4		518	
Th/Speech for Mentally Retarded	BA	X								1				1
	MA	X								1				1
	Total									2/	2	2/		2
	BA									1				1
O/Vocational Teacher for Mentally Retarded	MA									1				1
	Total									2/	2	2/		2
	BA									1				1
	MA									1				1
O/Psychologist for Mentally Retarded	Total									2/	2	2/		2
	Dr.	X								1				1
	Total									2/	1	2/		1
	Uk									2/	5	2/		5
O/Instructor for M.R. Th/Physical for Mentally Re- tarded & Physically Handicapped	BA	X									6			6
	MA	X									3			3

3/ Calculations incomplete due to missing data

4/ Employment data unavailable

Uk - Unknown

1/ Based on enrollment data only (no waiting list data available)

2/ Calculations cannot be made due to missing data

Alabama

1/ Based on enrollment data only (no waiting list data available)

3/ Calculations incomplete due to missing data

2/ Calculations cannot be made due to missing data

4/ Employment data unavailable

UK - Unknown



State Name: Alabama			Special Education Personnel Estimated Requirements/Employment Comparison <sup>1/</sup>														Data Period 1968 - 1969	
Occupation			Degree Level	Preschool	Elementary						Secondary		Ungraded		Unspecified		Total	
T=Teacher Th=Therapist Th/Physical (cont.)	A=Aide O=Other	Esti- mated			Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	
Th/Physical (cont.)	Uk	X														5		5
	Total															2/ 14	2/	14
	BA															6		6
	Total															2/ 6	2/	6
O/Vocational Rehabilitation Counselor	BA	X							21									21
	MA	X							17									17
	Total					2/ 38							120				120	38
	Uncert.															1	2/	1
T/ Special Learning Disabilities	BA	X														2		2
	MA	X							1							2		3
	Total					2/ 1							2/ 5			5	2/	6
	Uncert.															1		1
T/Physically Handicapped	BA	X														14		14
	MA	X														2		2
	Uk	X														2		2
	Total												2/ 19			19	2/	19
O/Social Worker for the Physically Handicapped	BA															3		3
	MA															15		15
	Total												2/ 18			18	2/	18

1/

Based on enrollment data only (no waiting list data available)

2/

Calculations cannot be made due to missing data

Uk

- Unknown

Alabama

<sup>1/</sup> Based on enrollment data only (no waiting list data available)

<sup>2/</sup> Calculations cannot be made due to missing data

Uk - Unknown

State Name: Alaska

Overview of Special Education Programs

Data Period 1968-69

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program			
		Ungraded				Residential	Day Special Class	Itinerant	Out of State
H-1	Blind	5-18					X		X
H-2	Partially Sighted	5-18					X		
H-3	Visually Handicapped								
H-4	Deaf	5-18					X		X
H-5	Hard of Hearing	5-18					X		
H-6	Hearing Handicapped								
H-7	Emotionally	5-18					X		X
H-8	Mentally Retarded								
H-9	EMR	5-18					X		
H-10	TMR	5-18					X		
H-11	MR(Custodial, Severe, Institutional)	5-18				X			
H-12	Speech Handicaps								
H-13	Speech and Hearing								
H-14	Special Learning Disabilities								
H-15	Brain Injured								
H-16	Physically Handicapped								
H-17	Homebound								
H-25	Other Health Impaired	5-18						X	
H-26	Ortho and Neuro Handicapped	5-18					X		X

Alaska

1/ If no entry is shown, category is not applicable to the state

Alaska





State Name: Arizona

Overview of Special Education Programs

Data Period 1968-1969

Arizona

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program				
		Elementary	Secondary	Un-graded	Residential	Special Class	Special Schools	Special Class in Regular Sch	Home Bound	
H-1	Blind									
H-2	Partially Sighted									
H-3	Visually Handicapped	6-14	15-18			X				
H-4	Deaf									
H-5	Hard of Hearing									
H-6	Hearing Handicapped	6-14	15-18			X				
H-7	Emotionally Handicapped			6-18			X	X		
H-8	Mentally Retarded	pre-ac 6-9	inter 9-13	Jr. H. 13-15	Sr. H. 15-20		X	X		
H-9	EMR									
H-10	TMR	pre-pri 6-10	pri 9-12	inter 11-15	teen age 14-20		X	X		
H-11	MR (Custodial, Severe, Institutional)	6-11	adv 10-15							
H-12	Speech Handicaps	6-14	15-18							
H-13	Speech and Hearing									
H-14	Special Learning Disabilities									
H-15	Brain Injured									
H-16	Physically Handicapped 2/	6-14	15-18				X	X		
H-17	Homebound			6-18					X	

1/ If no entry is shown, category is not applicable to the state

2/ Includes Special Learning Disabilities

[illegible]





State Name: Arkansas      Overview of Special Education Programs      Data Period 1968 - 1969

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)					Education Program				
		Preschool	Elementary	Secondary	Ungraded	Residential	Special	Day Special	Off-source	Itinerant	
H-1	Blind										
H-2	Partially Sighted										
H-3	Visually Handicapped		6-12	13-18	6-18	X					
H-4	Deaf										
H-5	Hard of Hearing										
H-6	Hearing Handicapped	4-5	6-12	13-18		X		X			
H-7	Emotionally		6-12	13-18		X		X			
H-8	Mentally Retarded										
H-9	EMR		6-12	13-18		X		X			
H-10	TMR (contains some Severe)		6-12	13-18		X		X			
H-11	MR (Custodial, Severe, Institutional)										
H-12	Speech Handicaps				6-18				X		
H-13	Speech and Hearing										
H-14	Special Learning Disabilities	2.5-5	6-12	13-18			X	X	X		
H-15	Brain Injured										
H-16	Physically Handicapped		6-12	13-18	6-18		X	X	X		
H-17	Homebound										

Arkansas

1/ If no entry is shown, category is not applicable to the state.



State Name: Arkansas			Enrollments In Special Education			Data Period 1968 -1969			Arkansas	
Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List Incomplete*		
			Resident	Special	Day Special	Resource	Itinerant			
HH3	Visually Handicapped	Elementary	105							
		Secondary	59							
		Ungraded	9							
HH6	Hearing Handicapped	Preschool	22					18		
		Elementary	192		7					
		Secondary	106							
		Unspecified						18		
HH7	Emotionally Disturbed	Secondary	95		25			145		
HH8	Mentally Retarded	Unspecified						783		
HH9	EMR	Elementary	102		3180					
		Secondary	217		840					
HH10	TMR	Elementary	190	134	80					
		Secondary	403							
HH12	Speech Handicaps	Ungraded					3900			
HH14	Special Learning Disabilities	Preschool		200						
		Elementary		150	12	360				
		Secondary				20				
HH16	Physically Handicapped	Elementary		10	58					
		Secondary			32					
		Ungraded					170			
* Supplied by Residential Schools only										

Arkansas

Arkansas

State Name: Arkansas			Personnel/Pupil Contact Ratio		Data Period 1968-1969				
Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types					
				Resident	Special	Day Special	Resource	Itinerant	
H-3	Visually Handicapped	Teacher/Institution	Elementary	1/12					
			Secondary	1/12					
			Ungraded	1/12					
H-6	Hearing Handicapped	Teacher/Institution	Elementary	1/12					
			Preschool	1/1					
			Elementary	1/10					
			Secondary	1/10					
			Elementary			1/6-10			
			Secondary	1/8					
H-7	Emotionally Disturbed	Teacher	Secondary			1/15			
		Teacher	Secondary	1/8					
		Aide	Secondary	1/8					
H-9	EMR	Teacher	Elementary			1/15			
		Teacher/Colony	Elementary	1/10					
		Aide	Secondary			1/15			
		Teacher/Colony	Secondary	1/10					
			Ungraded	1/10					
			Elementary		1/8	1/8			
H-10	TMR	Teacher	Elementary	1/8					
		Teacher/Colony	Secondary	1/8					
		Ungraded	1/8						
H-12	Speech Handicaps	Therapist	Ungraded	1/25				1/100	
		Therapist/Colony	Ungraded	1/50 est					

[illegible]

State Name: Arkansas Special Education Personnel Estimated Requirements/Employment Comparison <sup>1/</sup> Data Period 1968-1969

Arkansas

Occupation	Degree Level	Preschool	Education Level										Total		
			Preschool		Elementary		Secondary		Ungraded		Unspecified				
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed			
T=Teacher Th=Therapist O=Other															
T/Colony, EMR	Total			10	4	21	4			6	2/	31	14		
T/TMR	None	X			2								2		
	None				15								15		
	BA	X			7								7		
	MA	X			1								1		
	Total			27	25							27	25		
T/Colony, TMR	None				9		5		3/	4			18		
	BA				1		3			6			10		
	MA						2			3			5		
	Total			24	10	50	10		3/	13		74 1/	33		
Th/Speech	Uncer- tified									1			1		
	None	X													
	BA	X								32			32		
	MA	X								7			7		
	Total								39	40		39	40		
Th/Colony, Speech	None									1			1		
	BA									1			1		
	MA									1			1		
	Total								3/	3		3/	3		
T/Special Learning Disabilities	BA	X			8		21						29		
	MA	X					10	1					11		

<sup>1/</sup> Based upon enrollment data only (no waiting list data available).

<sup>2/</sup> Employment data unavailable.

<sup>3/</sup> Calculations cannot be made due to missing data.

<sup>4/</sup> Calculations incomplete due to missing data.

State Name: Arkansas

Special Education Personnel Estimated Requirements/Employment Comparison 1/

Data Period 1968 - 1969

Arkansas

Occupation	Degree Level	Certified	Education Level															
			Preschool		Elementary		Secondary		Ungraded		Unspecified		Total					
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed				
T/Teacher Th=Therapist O=Other	BA	X				11												17
	MA	X					5											13
	Total					9	16	5	13	1	1						15	30
	BA						1											1
A/Visually Handicapped	Total				9	1											9	1
	BA	X					20											27
	MA	X					4											14
	None	X					6											16
T/Hearing Handicapped	Total		2	4	20	30		10	23								32	57
	BA	X																7
	MA	X																2
	Total					32	2	3	9								32	9
A/Emotionally Disturbed	None																	2
	Total				32	2	2	3	2								32	2
	Unen- rrolled					1												1
	BA	X				166			49									215
T/EMR	MA	X				45			7									52
	Total				212	212	56	56	56								268	268
	BA					4			3		2							9
	MA								1		3							4
T/Colony, EMR	None																	1

1/ Based upon enrollment data only (no waiting list data available).

2/ Employment data unavailable.

3/ Calculations cannot be made due to missing data.

4/ Calculations incomplete due to missing data.

4/ Calculations incomplete due to missing data.

1/ Based upon enrollment data only (no waiting list data available).

2/ Employment data unavailable.

3/ Calculations cannot be made due to missing data.

Arkansas





Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program				
		Preschool	Elementary	Secondary	Unspecified	Residential School	Day Special Class	Resource Room	Itinerant	Teleclass
H-1	Blind	3-4	5-12	13-21		X	X			
H-2	Partially Sighted	3-4	5-12	13-21				X	X	
H-3	Visually Handicapped									
H-4	Deaf and Severely Hard of Hearing	3-4	5-14	15-20		X	X			
H-5	Hard of Hearing									
H-6	Hearing Handicapped									
H-7	Emotionally									
H-8	Mentally Retarded									
H-9	EMR		6-14	15-20		X	X			
H-10	TMR		6-14	15-21		X	X			
H-11	MR (Custodial, Severe, Institutional)									
H-12	Speech Handicaps									
H-13	Speech and Hearing				6-21			X		
H-14	Special Learning Disabilities									
H-15	Brain Injured									
H-16	Physically Handicapped *	3-4	5-14	15-20		X	X	X		X
H-17	Homebound									
H-18	Multiple Handicapped				5-21	X				
H-21	Educationally Handicapped **		6-14	15-20			X	X		
1/ If no entry is shown, category is not applicable to the state. * Includes other health impaired. ** Includes emotionally disturbed and special learning disabilities.										

California



State Name: California			Personnel/Pupil Contact Ratios		Data Period 1968-1969					California			
Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types					Resident School	Day Special Class	Resource Room	Itinerant	Teleclass
H1	Blind	Teacher	Preschool Elementary Secondary	1/16 1/8 1/10	1/8 1/8 1/10								
H2	Partially Sighted	Teacher	Preschool Elementary Secondary		1/10 1/10 1/12						1/14 1/16 1/20	1/18	
H4	Deaf and Severely Hard of Hearing	Teacher	Preschool Elementary Secondary	1/6 1/8 1/8	1/6 1/8 1/10								
		Aide	Preschool	1/6									
H9	Educable Mentally Retarded	Teacher	All Grades		1/15								
H10	Trainable Mentally Retarded	Teacher Instructional Aide	All Grades Elementary Secondary		1/10 1/20 1/30								
H13	Speech and Hearing	Speech Therapist	All Grades									1/15	
H16	Orthopedically H.C. and Other Health Impaired (Physically Handicapped)	Teacher	Preschool Elementary Secondary	1/12 1/12 1/14	1/12 1/14 1/16						1/24		
		Attendant	Preschool Elementary Secondary		1/12 1/14 1/16								
H21	Educationally Handicapped	Teacher	All Grades		1/10						1/32		

[illegible]

[illegible]

11/ If no entry is shown, category is not applicable to the state.

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List
			Special Schools	Cooperative Special Class	Resource Room	Itinerant		
H3	Visually Handicapped	Elementary	5	43				
		Secondary	3	30				
		Unspecified	7			90		
H6	Hearing Handicapped	Preschool	1	10				
		Elementary	28	254		6		
		Secondary	6	52		7		
		Unspecified	8	35	14	25		
		Elementary	134	629	1405	452		
H7	Emotionally Disturbed	Secondary	35	151	312			
		Unspecified	9	47	85	79		
		Preschool	244					
		Elementary	290	4097				
		Secondary	182	2963				
H10	TMR	Unspecified	6	56				
		Unspecified	688					
		Unspecified	331					
		Unspecified	159			17,102		
		Elementary	134	629	1405	452		
H16	Physically Handicapped	Secondary	35	151	312			
		Unspecified	9	47	85	79		

[illegible]

State Name:	Special Education Personnel Estimated Requirements/Comparison <sup>1/</sup>	Data Period
Colorado	1968-1969	

[illegible]



Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program					
		Preschool	Elementary	Secondary		Residential	Special School	Day Special Class	Integrated Cooperative	Resource Room	Itinerant
H-1	Blind										
H-2	Partially Sighted										
H-3	Visually Handicapped										
H-4	Deaf										
H-5	Hard of Hearing										
H-6	Hearing Handicapped	3-21	3-21	3-21		X	X	X	X	X	X
H-7	Emotionally	3-21	3-21	3-21		X	X	X		X	
H-8	Mentally Retarded										
H-9	EMR	4-6	6-16	12-12				X	X		
H-10	TMR	4-6	6-16	12-12							
H-11	MR (Custodial, Severe, Institutional)										
H-12	Speech Handicaps 2/					X			X		
H-13	Speech and Hearing										
H-14	Special Learning Disabilities							X	X	X	X
H-15	Brain Injured										
H-16	Physically Handicapped	4-6	5-21	16-21		X	X	X			
H-17	Homebound										
H-27	Perceptually Handicapped										

1/ If no entry is shown, category is not applicable to the state  
2/ Legislation considers part of Physical Handicapped

Connecticut

<sup>1/</sup> If no entry is shown, category is not applicable to the state  
<sup>2/</sup> Legislation considers part of Physical Handicapped

Connecticut

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Home-bound
			Residential	Special Schools	Day Special Class	Integrated Cooperative	Resource Room	
H-6	Hearing Handicapped	Preschool	127		115	10		
		Unspecified	422					
H-7	Emotionally Disturbed	Ungraded	60		600		228	180
H-9	EMR	Elementary			10,230*			
		Secondary			1690*			
H-12	Speech Handicaps	Preschool				12		
		Elementary	13					
		Unspecified				15,000		
H-14	Special Learning Disabilities	Elementary			160	429	387	314
H-16	Physically Handicapped	Preschool		70	11			
		Elementary			160			
		Ungraded	26					
H-27	Perceptually Handicapped	Unspecified	40		160		110	230

\* Combined figures for Day Special Class and Integrated Cooperative  
No waiting list data available

	* Combined figures for Day Special Class and Integrated Cooperative
No waiting list data available	

State Name: Connecticut

Personnel/Pupil Contact Ratio

Data Period 1968-69

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types				
				Resi- dential	Special School	Day Special Class	Resource Room	Home- bound
H-6	Hearing Handicapped	Teacher with Aide	Preschool	1/6		1/6-1/8		
			Elementary	1/6		1/6-1/8		
			Secondary	1/6		1/6		
H-7	Emotionally Disturbed	Teacher with Aide	Ungraded	1/7	1/7	1/7	1/9	1/5-1/6
H-9	EMR	Teacher*	Preschool			1/14		
			Elementary			1/16		
			Secondary			1/18		
		Teacher with Aide*	Preschool			1/18		
			Elementary			1/20		
			Secondary			1/24		
		Teacher**	Elementary			1/12		
			Secondary			1/12		
		Teacher with Aide**	Elementary			1/16		
			Secondary			1/16		
H-10	TMR	Teacher*	Preschool			1/8		
			Elementary			1/10		
			Secondary			1/10		
		Teacher with Aide*	Preschool			1/12		
			Elementary			1/15		
			Secondary			1/15		
		Teacher**	Elementary			1/8		
			Secondary			1/8		
* For towns having more than 3000 school age children								
** For towns having less than 3000 school age children								

Connecticut

Connecticut

Data Period 1968-69

Personnel/Pupil Contact Ratio

**State Name:** Connecticut

Connecticut

[illegible]

\*\*\* For towns having less than 3000 school age children

\*\*\* No data for this program on preceding page

State Name: Connecticut Special Education Personnel Estimated Requirements/Employment Comparison Data Period 1968-69

Data Period 1968-69

## Connecticut

[illegible]

11/	Based upon enrollment data only (no waiting list data available)
11/	Based upon enrollment data only (no waiting list data available)

2/ Calculations cannot be made due to missing data based upon enrollment data only (no waiting list)

3/ Employment data unavailable

**Uk - Unknown**

## State Name: Delaware      Overview of Special Education Programs      Data Period 1968-1969

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program					
		Preschool	Elementary	Secondary		Residential	Special	Day Special	Cooperative Special	Resource Room	Itinerant
H-1	Blind	4-6	7-12	13→							
H-2	Partially Sighted										
H-3	Visually Handicapped										
H-4	Deaf										
H-5	Hard of Hearing										
H-6	Hearing Handicapped	4-6	7-12	13→							
H-7	Emotionally & Socially Handicapped		7-12	13→							
H-8	Mentally Retarded										
H-9	EMR		7-12	13→							
H-10	TMR	4-6	7-12	13→							
H-11	MR (Custodial, Severe, Institutional)										
H-12	Speech Handicaps										
H-13	Speech and Hearing		7-12	13→							
H-14	Special Learning Disabilities		7-12	13→							
H-15	Brain Injured										
H-16	Physically Handicapped (Orthopedic)	4-6	7-12	13→							
H-17	Homebound										
H-24	Special Physical Problem (Ungraded)		7-12	13→							

1/ If no entry is shown, category is not applicable to the state.

Delaware

1/ If no entry is shown, category is not applicable to the state.

[illegible]

Data Period 1968-1969

Personnel/Pupil Contact Ratio

State Name: Delaware

Handicap Code	Handicap Category	Occupation	Education Level	All Pro-grams	Special Education Program Types		
H1	Blind	Teacher/Braille	All Grades	1/150			
		Counselor	All Grades	1/40			
		Case Worker	All Grades	1/80			
H6	Hearing Handicapped	Teacher	All Grades	1/8			
		Aide	Preschool	1/8			
			Elementary	1/16			
			Secondary	1/16			
		Instr. Media Specialist	Ungraded	1/80			
H7	Emotionally Disturbed	Teacher	All Grades	1/10			
H9	EMR	Teacher	All Grades	1/15			
H10	TMR	Full-time Nurse	All Grades	1/50			
		Teacher	All Grades	1/12			
		Aide	All Grades	1/12			
H13	Speech and Hearing	Specialists	All Grades	1/80-1/100			
H14	Special Learning Disabilities	Teacher	All Grades	1/8			
		Specialists	All Grades	1/24			
H16	Physically Handicapped (Orthopedically)	Teacher	All Grades	1/10			
		Aide	All Grades	1/10			
		Nurse	All Grades	1/50			



[illegible]

Uk - Unknown

1/ Based upon enrollment data only (no waiting list data available).

2/ Calculations cannot be made due to missing data.

3/ Employment data unavailable.

State Name: Florida

Overview of Special Education Programs

Data Period 1968-69

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program				
		Preschool	Elementary	Secondary	All Grades	Residential Special Class	Special School or Class	Cooperative Class	Resource Room	Itinerant
H-1	Blind									
H-2	Partially Sighted									
H-3	Visually Handicapped *	3-5	6-12	13-21		X	X			X
H-4	Deaf **	3-5	6-15	16-21		X	X	X	X	
H-5	Hard of Hearing	3-5	6-12	13-21						X
H-6	Hearing Handicapped									
H-7	Emotionally (Disturbed)	3-5	6-12	13-21		X	X		X	
H-8	Mentally Retarded									
H-9	EMR	3-5	6-12	13-21			X		X	
H-10	TMR	3-5	6-12	13-21			X			
H-11	MR (Custodial, Severe, Institutional)									
H-12	Speech Handicaps				6-21					X
H-13	Speech and Hearing									
H-14	Specific Learning Disabilities	3-5			6-21		X		X	
H-15	Brain Injured									
H-16	Physically Handicapped	3-5	6-12	13-21			X		X	
H-17	Homebound									
H-23	Socially Maladjusted			13-21		X				

Florida

\* Called "Blind and Partially Sighted"

\*\* Includes severely hard of hearing

1/ If no entry is shown, category is not applicable to the state

State Name: Florida

Enrollments In Special Education

Date Period 1968-69

Florida

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Unspeci- fied Part- Time Pro- gram	Waiting List
			Resi- dential Special Class	Special School or Class	Coopera- tive Class	Resource Room	Itinerant		
H3	Blind and Partially Sighted	Preschool	5						
		Elementary	67						
		Secondary	150						
		Unspecified		161				531	55
H4	Deaf and Severely Hard of Hearing	Preschool	166	210					
		Elementary	200	352		90			
		Secondary	159	63		38			
		Unspecified			20	9			127
H5	Hard of Hearing	Unspecified					1033		
H7	Emotionally Disturbed	Preschool	4						
		Elementary	26	740		722			30*
		Secondary	80	128		30			
		Unspecified		202					445
H9	Educable Mentally Retarded	Elementary		7302		2651			
		Secondary		5474		1930			
		Unspecified		692		554			6223
H10	Trainable Mentally Retarded	Elementary		1462					
		Secondary		757					
		Unspecified		53					355
H12	Speech Handicaps	Unspecified					32809		11880
H14	Specific Learning Disabilities	Unspecified (continued)		443		959			781
* Institutional waiting list									

[illegible]

State Name: Florida

Personnel Contact Ratio

Data Period 1968-69

Florida

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types				
				Residential Special Class	Special School or Class	Resource Room	Itinerant	
H3	Blind and Partially Sighted	Teacher	Preschool		1/8			
			Elementary	1/7	1/10			
			Secondary	1/10	1/15			
		Peripatologist	All Grades				1/20	
			All Grades				1/75	
			All Grades	1/15				
H4 H5	Deaf and Hard of Hearing	Mobility Instructor	All Grades	1/300				
			All Grades					
			All Grades	1/300				
		Physical Therapist	All Grades	1/300				
			Preschool	1/8	1/8		1/12	
			Elementary	1/10	1/10		1/12	
H7	Emotionally Disturbed	Teacher	Secondary	1/10	1/12		1/12	
			All Grades	1/250				
			All Grades	1/250				
		Psychologist	Elementary	1/5	1/15	1/15		
			Secondary	1/15	1/15	1/15		
			Preschool		1/12			
H9	Educable Mentally Retarded	Teacher	Elementary		1/15			
			Secondary		1/18			
			Preschool		1/10			
		Teacher	Elementary		1/10			
			Secondary		1/15			
			(continued)					

[illegible]

State Name: Florida		Special Education Personnel Estimated Requirements/Employment Comparison <sup>1/</sup>										Data Period 1968-69	
Occupation	Degree Level	O	Education Level										Total
			Preschool	Elementary	Secondary	Unclassified	Unspecified	Estimated	Employed	Estimated	Employed	Estimated	
T/Blind and Partially Sighted	Th=Teacher		Estimated	Estimated	Estimated	Estimated	Estimated	Estimated	Estimated	Estimated	Estimated	Estimated	
	A=Aide												
	O=Other												
A/Blind and Partially Sighted	Uncert												3
	Uk												71
	Total		2/	9.6	3/	3/	2/	74	2/	74	2/	74	74
O/Child Care Counselor for B&PS	Uk												4
	Uk												31
	Total			2/	4								2/
T/Deaf and Hard of Hearing	BA												50
	MA												22
	Uk												95
A/Deaf and Hard of Hearing	Uk												167
	MA												1
	Doc												1
O/Social Worker	Total			2/	3								3
	BA												5
	MA												1
O/Audiologist	Total			2/	6								2/
	MA												6
	BA												2
T/Emotionally Disturbed	BA												5
	MA												4
	Uk												109
Total	Uk			105	94	16	15	43		164	3/	164	118
	MA			105	100	16	18	43		164	3/	164	118
	Total			105	100	16	18	43		164	3/	164	118

Florida

1/Calculation incomplete due to missing data  
 2/ Calculation cannot be made due to missing data  
 3/ Employment data are unavailable  
 Uk - Unknown

1/ Calculation incomplete due to missing data  
2/ Calculation cannot be made due to missing data  
3/ Employment data are unavailable  
UK - Unknown



Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)				Education Program			
		Preschool	Elementary		Secondary	Residential	Itinerant	No Program Breakdown	
H-1	Blind								
H-2	Partially Sighted								
H-3	Visually Handicapped		7-10	11-14	13-16	X		X	
H-4	Deaf								
H-5	Hard of Hearing								
H-6	Hearing Handicapped	3-6	7-10	11-14	13-16	X		X	
H-7	Emotionally Disturbed		7-10	11-14	13-16	X		X	
H-8	Mentally Retarded								
H-9	EMR		6-9	9-13	13+	X		X	
H-10	TMR		6-12		12-18	X		X	
H-11	MR (Custodial, Severe, Institutional)								
H-12	Speech Impaired		7-10	11-14	13-16		X		
H-13	Speech and Hearing								
H-14	Special Learning Disabilities		7-10	11-14	13-16				
H-15	Brain Injured								
H-16	Physically Handicapped								
H-17	Homebound							X	
H-18	Multiple Handicapped							X	

<sup>1/</sup> If no entry is shown, category is not applicable to the state

State Name: Georgia

Enrollments In Special Education

Data Period 1968-1969

Georgia

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type				Waiting List
			Residential	Itinerant	Unspecified Program		
H-3	Visually Handicapped	Preschool	87		9		943
		Elementary	66		218		3307
		Secondary	47		144		1913
H-6	Hearing Handicapped	Preschool	96		73		1232
		Elementary	300		161		10,775
		Secondary	140		35		5125
H-7	Emotionally Disturbed	Preschool	6		63		2850
		Elementary	46		113		7804
		Secondary	31				5725
H-8	Mentally Retarded	Preschool	12				70
		Elementary	54				720
		Secondary	9				210
H-9	EMR	Preschool	4		2843		5217
		Elementary	28		8470		19,267
		Secondary	38		1867		17,726
H-10	TMR	Preschool	15		28		1100
		Elementary	204		380		3010
		Secondary	311		273		2198
H-12	Speech Impaired	Preschool		1021			6194
		Elementary		8932			10,602
		Secondary		825			4942
	(cont.)						

State Name: Georgia

Enrollments In Special Education

Data Period 1968-1969

Georgia

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type			Waiting List
			Residen- tial	Itinerant	Unspeci- fied Program	
H-17	Homebound	Preschool			107	536
		Elementary			459	545
		Secondary			410	477
H-18	Multiple Handicapped	Preschool			13	1130
		Elementary			102	1523
		Secondary			42	1123

[illegible]

[illegible]

1/ Calculation cannot be made due to missing data  
Uk - Unknown

State Name: Hawaii      Overview of Special Education Programs      Data Period 1968 - 1969

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program					
		Preschool	Elementary	Secondary	Unspecified	Residential	Special School	Day Special Class	Resource Room	Itinerant	
H-1	Blind	4-6	7-12	13-20			X	X			
H-2	Partially Sighted	4-6	7-12	13-20				X	X	X	
H-3	Visually Handicapped										
H-4	Deaf	3-6	7-12	13-20			X	X			
H-5	Hard of Hearing		7-12	13-20				X			
H-6	Hearing Handicapped										
H-7	Emotionally Handicapped	4-6	7-12	13-20			X	X			
H-8	Mentally Retarded										
H-9	EMR	4-6	7-12	13-20		X	X	X			
H-10	TMR	4-6	7-12	13-20		X	X	X			
H-11	MR (Custodial, Severe, Institutional)										
H-12	Speech Impaired				4-20					X	
H-13	Speech and Hearing										
H-14	Special Learning Disabilities	3-6	7-12	13-20			X*	X			
H-15	Brain Injured										
H-16	Physically Handicapped	4-6	7-12	13-20			X	X			
H-17	Homebound				4-18					X	

Hawaii

\*Private Schools

1/ If no entry is shown, category is not applicable to the state

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List
			Residen- tial	Special School	Day Special Class	Unknown Local Public	Itinerant	
H-1	Blind	Preschool		4				
		Elementary		9				
		Secondary			11			
H-2	Partially Sighted	Preschool			7			
		Elementary				30		
		Secondary				12		
H-4	Deaf	Preschool		44	38			
		Elementary		65				
		Secondary		34	7			
H-5	Hard of Hearing	Preschool			96			
		Elementary			118			
		Secondary			37			
H-7	Emotionally Handicapped	Preschool			9			
		Elementary		22	77			
		Secondary		46	84			
H-9	EMR	Preschool			19			
		Elementary		29	1137			
		Secondary		79	966			
H-10	TMR	Preschool	23					
		Elementary		42	124			
		Secondary		41	65			

Hawaii

NOT AVAILABLE

NOT AVAILABLE

State Name: Hawaii (Cont.)      Enrollments In Special Education      Data Period 1968-1969

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List
			Residen- tial School	Special School	Day Special Class	Unknown Local Public	Itinerant	
H-12	Speech Impaired	All Grades					3064	
H-14	Specific Learning Disabilities	Preschool		5	22			
		Elementary		33	380			
		Secondary			99			
H-16	Orthopedically Handicapped	Preschool		17	2			
		Elementary		92	3			
		Secondary		36	18			
H-17	Homebound	All Grades					114	



State Name: Hawaii

Personnel/Pupil Contact Ratio

Data Period 1968-1969

Hawaii

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types			
				Resident-Special School	Day Special Class	Resource Room	Itinerant
H-1	Blind	Teacher	Preschool Elementary Secondary	1/7 1/9	1/10		
H-2	Partially Sighted	Teacher	Preschool Elementary Secondary		1/8 1/8		
H-4	Deaf	Teacher	Preschool Elementary Secondary	1/6 1/6 1/8	1/8 1/8 1/8	1/11	1/14
H-5	Hard of Hearing	Teacher	Preschool Elementary Secondary	1/6	1/12 1/13 1/13		
H-7	Emotionally Handicapped	Teacher	Preschool Elementary Secondary	1/6 1/8	1/6 1/9		
H-9	EMR	Teacher	Preschool Elementary Secondary	1/13 1/14	1/6 1/13 1/16		
H-10	TMR	Teacher	Elementary Secondary	1/11 1/14	1/12 1/14		
		Training Assistant	Preschool	1/6			

[illegible]

[illegible]

State Name: Idaho

Overview of Special Education Programs

Data Period 1968 - 1969

Idaho

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program			
		Preschool	Elementary	Secondary	Ungraded	Residential	Spec Ed Classes in Reg School	Itinerant	
H-1	Blind		5-12	12-18		X			
H-2	Partially Sighted		5-12	12-18		X			
H-3	Visually Handicapped								
H-4	Deaf	3-8	8-12	12-18		X			
H-5	Hard of Hearing	3-8	8-12	12-18		X		X	
H-6	Hearing Handicapped								
H-7	Emotionally Disturbed*		8-18	14-19		X	(Legal delinquents - not necessarily emotionally disturbed)		
H-8	Mentally Retarded **	4½-7	5½-15	13-20		X			
H-9	EMR				6-21		X		
H-10	TMR				6-20		X		
H-11	MR (Custodial, Severe, Institutional)								
H-12	Speech Handicaps				6-21			X	
H-13	Speech and Hearing								
H-14	Special Learning Disabilities				6-20		X		
H-15	Brain Injured								
H-16	Physically Handicapped				7-21		X		
H-17	Homebound								

\* Delinquents at State Youth Rehabilitation Center

\*\* At Idaho State School and Hospital, mild and moderate

1/ If no entry is shown, category is not applicable to the state.

[illegible]

State Name: Idaho Personnel/Pupil Contact Ratio Data Period 1968 - 1969

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types			
				Residential	Spec Ed Classes in Reg School	Itinerant	
H-3	Visually Handicapped	Teacher	Preschool	1/16			
			Elementary	1/10			
			Secondary	1/10			
H-3		Teacher/Music	Ungraded	1/70			
H-6	Hearing Handicapped	Teacher	Preschool	1/6			
			Elementary	1/8			
			Secondary	1/8			
		Audiologist	Ungraded	1/150			
		Physical Education	Ungraded	1/70			
H-7	Emotionally Disturbed	Teacher	Ungraded	1/12			
		Social Worker/Counselor	Ungraded	1/30			
H-9	EMR	Teacher	Elementary		1/12		
			Secondary		1/12		
			Ungraded	1/10			
H-10	TMR	Teacher	Ungraded	1/8			
H-13	Speech and Hearing	Therapist	Elementary			1/70	
			Secondary			1/70	
H-14	Special Learning Disabilities	Teacher	Elementary		1/10		
			Secondary		1/10		
H-16	Physically Handicapped	Teacher	Elementary		1/12		
			Secondary		1/12		

State Name: Idaho		Special Education Personnel Estimated Requirements/Employment Comparison <sup>1/</sup>										Data Period 1968-69	
Occupation	Degree Level	Estimated	Education Level						Unspecified				Total
			Preschool	Elementary	Secondary	Ungraded	Unspecified	Total	Estimated	Employed	Estimated	Employed	
T=Teacher Th=Therapist T/Visually Handicapped	A=Aide O=Other												
T/Hearing Handicapped	BA	X											5
	Total												5
T/Vocational	BA	X											11
	MA	X											6
T/O Social Worker-Counselor	Total												17
	None	X											6
T/Emotionally Disturbed	BA	X											5
	Total												11
T/Mentally Retarded	BA	X											3
	Uk												1
T/Physically Handicapped	Total												4
	None	X											1
T/Physically Handicapped	BA	X											10
	MA	X											4
T/Physically Handicapped	Total												14
	None	X											1
T/Physically Handicapped	BA	X											24
	MA	X											13
T/Physically Handicapped	Total												37
	None	X											5
T/Physically Handicapped	BA	X											111
	Uk	X											116
T/Physically Handicapped	Total												227
	None	X											87
T/Physically Handicapped	BA	X											34
	MA	X											25
T/Physically Handicapped	Total												59
	None	X											10
T/Physically Handicapped	BA	X											2.5
	MA	X											4
T/Physically Handicapped	Total												6.5
	None	X											4

Uk - Unknown

<sup>1/</sup> Based upon enrollment data only (no waiting list data available)<sup>2/</sup> Calculations cannot be made due to missing data<sup>3/</sup> Calculations incomplete due to missing data<sup>4/</sup> Employment data unavailable by education level

State Name: Idaho			Special Education Personnel Estimated Requirements/Employment Comparison										Data Period 1968 - 69	
Occupation T=Teacher Th=Therapist O=Other			Degree Level	Certified	Education Level								Total	
					Preschool		Elementary		Secondary		Ungraded			
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed
T/Music	BA							1						1
	Total							.5		1			.5	1
T/Physical Education	BA							1						1
	Total							1.8		1			1.8	1
O/Audiologist	Total									.8		4	.8	4
Idaho														
4/ Employment data unavailable														
.. Uk - Unknown														

Idaho



Illinois

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program			
		Preschool	Elementary	Secondary	Ungraded	Residential School	Day Special Class		Itinerant
H-1	Blind	3-5	6-13	14-21			X		
H-2	Partially Sighted	3-5	6-13	14-21			X		
H-3	Visually Handicapped					X			
H-4	Deaf	3-5	6-13	14-21			X		
H-5	Hard of Hearing	3-5	6-13	14-21			X		
H-6	Hearing Handicapped					X			
H-7	Emotionally		5-13	14-21			X		
H-8	Mentally Retarded								
H-9	EMR		5-13	14-21			X		
H-10	TMR		5-13	14-21			X		
H-11	MR (Custodial, Severe, Institutional)								
H-12	Speech Handicaps				5-21				X
H-13	Speech and Hearing								
H-14	Special Learning Disabilities		5-13	14-21			X		
H-15	Brain Injured								
H-16	Physically Handicapped	3-5	6-13	14-21		X	X		X
H-17	Homebound								
H-18	Multiple Handicapped	3-5	6-13	14-21			X		
H-23	Socially Maladjusted		5-13	14-21			X		

Illinois Department of Public Instruction does have much data on service to children. It is not tabulated in form needed for this study, and so is provided here in summary form.  
1/ If no entry is shown, category is not applicable to the state.

State Name: Illinois

Enrollments In Special Education

Data Period 1967-1968

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type				Waiting List
			Residential School		Day Special Class	Itinerant	
H-1	Blind	Unspecified			120		
H-2	Partially Sighted	Unspecified			1064		
H-3	Visually Handicapped	Elementary	90				
		Secondary	66				
		Ungraded	53				
H-4	Deaf	Preschool			281		
H-6	Hearing Handicapped	Unspecified			2117		NOT AVAILABLE
		Preschool	21				
		Elementary	257				
		Secondary	155				
		Ungraded	48				
H-7	Emotionally Disturbed	Unspecified			280		
H-9	EMR	Unspecified			21941		
H-10	TMR	Unspecified			2678		
H-12	Speech Handicaps	Unspecified				84940	
H-14	Special Learning Disabilities	Unspecified			2762		
H-16	Physically Handicapped	Unspecified			3971	3597	
		Elementary	73				
		Secondary	25				
H-18	Multiple Handicapped	Unspecified					
H-23	Socially Maladjusted	Unspecified					

Illinois

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types				Inherent
				Residential School	Day Special Class			
H-1	Blind	Teacher	Preschool		1/8			
			Elementary	1/8	1/10			
			Secondary	1/12	1/10			
H-2	Partially Sighted	Teacher	Preschool		1/10			
			Elementary	1/8	1/14			
			Secondary	1/12	1/14			
H-4	Deaf	Teacher	Preschool		1/10			
			Elementary		1/8			
			Secondary		1/8			
		T - Nursery-Kindergarten	Preschool		1/10			
H-6	Hearing Handicapped	Teacher	Preschool	1/7	1/8			
			Elementary	1/7	1/12			
			Secondary	1/7	1/12			
H-7	Emotionally Disturbed	Teacher	Elementary		1/10			
			Secondary		1/10			
H-9	EMR	Teacher	Elementary		1/15			
			Secondary		1/20			
H-10	TMR	Teacher	Elementary		1/10 (1/15 with Aide)			
			Secondary		1/10 (1/15 with Aide)			
		Aide	Elementary		1/15			
			Secondary		1/15			

State Name: Illinois

Personnel/Pupil Contact Ratio

Data Period 1967-1968

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types				
				Rest-School	Day Special Class	Resource Room	Itinerant	All Programs
H-12	Speech Handicaps	Therapist	Ungraded				1/80 yr	
H-14	Special Learning Disabilities	Teacher	Elementary		1/10			
			Secondary		1/10			
H-16	Physically Handicapped	Teacher	Preschool	1/8	1/8			
			Elementary	1/8	1/15			
			Secondary	1/8	1/15			
		Aide	Preschool		1/8			
			Elementary		1/15			
			Secondary		1/15			
H-18	Multiple Handicapped	Therapist (Physical)	Ungraded		1/50 yr			
		Therapist (Occupational)	Ungraded		1/50 yr			
		Teacher Home & Hosp.	Ungraded				1/12 yr	
		Teacher	Preschool		1/8			
			Elementary		1/10			
			Secondary		1/10			
H-23	Socially Maladjusted	Aide	Preschool		1/8			
			Elementary		1/10			
			Secondary		1/10			
		Teacher	Elementary		1/20	1/10	1/10	
			Secondary		1/20	1/10	1/10	
			All Grades					1/125 yr
	All Handicaps	School Psychologist	All Grades					1/60 yr
		Psychologist Intern.	All Grades					1/70 yr
		School Social Worker	All Grades					1/70 yr

State Name: Illinois

Special Education Personnel Estimated Requirements/Employment Comparison 1/

Data Period 1967 - 1968

Illinois

Occupation T=Teacher Th=Therapist A=Aide O=Other	Degree Level	En- titled	Education Level										Total	
			Preschool		Elementary		Secondary		Ungraded		Unspecified			
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed		
T/Blind	Uk	X									3/	36	3/	36
T/Partially Sighted	Uk	X									3/	106	3/	106
T/Visionally Handicapped					11	4/	6	4/					17	4/
T/Deaf	Uk	X	28	28									28	28
T/Nursery-Kindergarten/Deaf	Uk	X	28	27									28	27
T/Hearing Handicapped	Uk	X	3	4/	37	4/	22	4/			176	167	238	167
T/Emotionally Disturbed	Uk	X									28	42	28	42
T/EMR	Uk	X									1462	1748	1462	1748
T/TMR	Uk	X									267	245	267	245
A/TMR	Uk										178	2/	178	2/
Th/Speech Handicaps	Uk	X							1061	878			1061	878
T/Special Learning Disabilities	Uk	X									276	304	276	304
T/Physically Handicapped	Uk	X		4/	9	4/	3	4/			265	162	277	162
A/Physically Handicapped	Uk										265	2/	265	2/
Th/Physical	Uk	X							79	54			79	54
Th/Occupational	Uk	X							79	5			79	5
T/Homebound and Hospital									299	75			299	75
T/Socially Maladjusted	Uk	X									790	811	790	811
T/Multiple Handicap	Uk	X									9	123	9	123
A/Multiple Handicaps	Uk										9	2/	9	2/
1/ Based upon enrollment data only (no waiting list data available)			4/ Employment data unavailable											
2/ Employment data unavailable (total aides for all handicaps equal 515)			Uk - Unknown											
3/ Calculations cannot be made due to missing data														

[illegible]

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)					Education Program			
		Preschool	Primary	Inter- mediate	Jr. High	High	Residential Special Classes	Special Schools	Day Special Class	
H-1	Blind									
H-2	Partially Sighted									
H-3	Visually Handicapped		6-9	9-13	13-16	16-21	X	X	X	
H-4	Deaf		6-9	9-13	13-16	16-21	X	X	X	
H-5	Hard of Hearing		6-9	9-13	13-16	16-21			X	
H-6	Hearing Handicapped									
H-7	Emotionally							X	X	
H-8	Mentally Retarded									
H-9	EMR	5-6	6-9	9-13	13-16	16-21		X	X	
H-10	TMR		6-9	9-13	13-16	16-21		X	X	
H-11	MR (Custodial, Severe, Institutional)		6-9	9-13	13-16	16-21		No Data		
H-12	Speech Handicaps <sup>2/</sup>								X	
H-13	Speech and Hearing									
H-14	Special Learning Disabilities <sup>3/</sup>									
H-15	Brain Injured									
H-16	Physically Handicapped <sup>4/</sup>		6-9	9-13	13-16	16-21			X	
H-17	Homebound		6-9	9-13	13-16	16-21			X	

Indiana

- <sup>1/</sup> If no entry is shown, category is not applicable to the state  
<sup>2/</sup> Includes most Hard of Hearing  
<sup>3/</sup> Experimental programs  
<sup>4/</sup> Includes special health programs

Data Period 1968-69

## Enrollments In Special Education

**State Name: Indiana**

[illegible]



Indiana

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types		
				All Programs		
H-9	EMR	Teacher	Preschool	1/10-1/12		
			Primary	1/10-1/13		
			Intermediate	1/12-1/15		
			Junior High	1/12-1/15		
			High School	1/15-1/17		
H-10	TMR	Teacher	All Grades	1/10-1/13		
H-12	Speech Handicaps	Speech and Hearing Ther.	All Grades	1/5*		
	</					

4

Data Period 1968-69

1/ Calculations cannot be made due to missing data

**Uk - Unknown**

Age Breakdowns are approximations  
1/If no entry is shown, category is not applicable to the state

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List
			Special School	Day Special Classes	Resource Room	Itinerant		
H-3	Visually Handicapped	Unspecified			12	59		
H-6	Hearing Handicapped	Unspecified		84		907 *		
H-7	Emotionally Disturbed	Unspecified		166				
H-9	EMR	Elementary		4938				
		Secondary		3237				
		Unspecified			106			
H-10	TMR	Elementary		926				
		Secondary		191				
H-12	Speech Handicaps	Unspecified				17,663 **		
H-14	Special Learn. Disabilities	Unspecified	45	29	43	30		
H-16	Physically Handicapped	Unspecified		177		220 homebound		

\* 8847 indirect service  
\*\* 7548 improvement programs

**\* caseload**

[illegible]

State Name: Iowa

Special Education Personnel Estimated Requirements/Employment Comparison 1/

Data Period 1968-1969

Iowa

Occupation	Degree Level	Preschool	Education Level												
			Esti- mated	Employed	Elementary	Esti- mated	Employed	Secondary	Esti- mated	Employed	Ungraded	Esti- mated	Employed	Total	
T-Teacher	A-Aide														
Th-Therapist	O-Other														
T/Visually Handicapped	Uk	X											5	8	5 8
T/Hearing Handicapped	Uk	X											124 2/	21	124 2/ 21
Th/Hearing	Uk	X											1 2/	14	1 2/ 14
T/Emotionally Disturbed	Uk	X											17 2/	20	17 2/ 20
T/Mentally Retarded	Uk	X											3/	10	3/ 10
T/EMR	None	X												105	105
	BA	X												406	406
	MA	X												81	81
	Total		247	4/	162	4/							5 2/	592	414 2/ 592
T/TMR	None	X												41	41
	BA	X												81	81
	MA	X												12	12
	Total		93	4/	19	4/							3/	134	112 2/ 134
Th/Speech Handicaps	Uk	X												8-12	240
T/Special Learn. Disabilities	Uk	X												12 2/	14
T/Physically Handicapped	Uk	X												26 2/	35
Th/Physical	Uk	X												3/	9
Th/Occupational	Uk	X												3/	1
O/Psychologists	Uk	X												3/	148
O/Social Workers	Uk	X												3/	24
O/Work Study Coordinators	Uk	X												3/	4
O/Voc. Rehab. Counselors	Uk	X												3/	18

1/ Based upon enrollment data only (no waiting list data available)

2/ Calculations incomplete due to missing data

3/ Calculations cannot be made due to missing data

4/ Employment data unavailable

Uk - Unknown

Iowa

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program			
		Preschool	Elementary	Secondary	Ungraded	Residential	Day Special Class	Resource Room	Itinerant
H-1	Blind								
H-2	Partially Sighted								
H-3	Visually Handicapped	no -5 min	6-12	13-21		X	X	X	X
H-4	Deaf								
H-5	Hard of Hearing								
H-6	Hearing Handicapped	no -5 min	6-12	13-21		X	X		X
H-7	Emotionally Disturbed	no -5 min	6-12	13-21		X	X	X	X
H-8	Mentally Retarded								
H-9	EMR		6-12	13-21			X		
H-10	TMR		6-12	13-21			X		
H-11	MR (Custodial, Severe, Institutional)				5-21	X			
H-12	Speech Handicaps		6-12	13-21					X
H-13	Speech and Hearing								
H-14	Special Learning Disabilities		6-12	13-21		X	X	X	X
H-15	Brain Injured								
H-16	Physically Handicapped	no -5 min	6-12	13-21		X	X	X	X
H-17	Homebound								
H-18	Deaf-Blind Multiple	no -5 min	6-12	13-21					X

1/ If no entry is shown, category is not applicable to the state.

Kansas

1/ If no entry is shown, category is not applicable to the state.

[illegible]



State Name: Kansas

Personnel/Pupil Contact Ratio

Data Period

Kansas

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types		
				Residential	Day Special Class	Resource/Itinerant
H-3	Visually Handicapped	Teacher	Preschool			1/6
			Elementary	1/5		
			Secondary	1/5	1/6-14	1/10-35 per week
		Para-Professional	Preschool			1/3
H-6	Hearing Handicaps	Teacher	Preschool		1/6	
			Elementary	1/7	1/10	1/10 per week
			Secondary	1/7	1/10	1/10 per week
H-7	Emotionally Disturbed	Teacher	Preschool		1/6	
			Elementary	1/8	1/8	1/12 per week
			Secondary	1/8	1/8	1/12 per week
H-9	EMR	Teacher	Elementary		1/9-15	
			Secondary		1/9-15	
		Work Placement Consultant	Secondary		1/40 case load	
H-10	TMR	Teacher	Elementary		1/5-8	
			Secondary		1/5-8	
H-11	Mentally Retarded	Teacher	Ungraded	1/5*		
H-14	Special Learning Disabilities	Teacher	Elementary	1/13	1/13	1/15 per week
			Secondary		1/13	1/15 per week
H-16	Physically Handicapped	Teacher	Elementary	1/5-14	1/5-14	1/5-14 per week
			Secondary	1/5-14	1/5-14	1/5-14 per week
H-18	Deaf-Blind Multiple	Teacher	Ungraded			1/1

\*estimated for purposes of study-not sure about ratio

Kansas

State Name: Kansas		Special Education Personnel Estimated Requirements/Employment Comparison 1/										Data Period	
Occupation T=Teacher Th=Therapist A=Alde O=Other	Degree Level	Enrollment	Education Level										Total
			Preschool	Elementary	Secondary	Ungraded	Unspecified	Estimated	Employed	Estimated	Employed	Estimated	Employed
T/Visually Handicapped	Total	X	2/	13 3/	10	16	16		15	29 3/	27		
O/Para-Professional-Vis. Hdcp.	None		2/							2/	2		
T/Hearing Handicapped	BA	X	3		9	6					18		
	MA	X	4		14	7					25		
	UK				12	10					22		
	Total		8	47	35	11	23			66	65		
T/Emotionally Disturbed	UK	X			3	3	2		6		14		
	BA	X	1		13	40		11			65		
	MA	X			12	22		1			35		
	Total		2/	2/	28	2/	2/	146 3/	18	146 3/	124		
T/EMR	BA	X			179	92					271		
	MA	X			40	24					64		
	Total			211-352	219	87-146	116			298-498	335		
O/Para-Professional EMR	Total			2/	2					2/	2		
A/EMR	Total			2/	2	2/	2			2/	2		
T/TMR	BA	X			9	12					21		
	MA	X			3						3		
	Total				12	12				37-59	24		
A/TMR	Total			2/	8					2/	8		
T/Mentally Retarded	UK	X					6						
	BA	X					9						

1/ Based upon enrollment only (no waiting list data available)

2/ Calculations cannot be made due to missing data

3/ Calculations incomplete due to missing data

UK-Unknown



Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program			
		Preschool	Elementary	Secondary	All Grades	Residential	Special School	Day Special Class	Itinerant
H-1	Blind	5-7*	8-13* 6-13	14-21* 14-21		X			
H-2	Partially Seeing							X	
H-3	Visually Handicapped								
H-4	Deaf 2/	3-5*	6-13 6-13	13-21 14-21	6-21	X		X	
H-5	Hard of Hearing							X	
H-6	Hearing Handicapped								
H-7	Emotionally Disturbed	5-9*	10-13* 6-13	14-21		X		X	
H-8	Mentally Retarded								
H-9	EMR		6-13	14-21	6-21	X		X	
H-10	TMR				6-21	X	X	X	
H-11	MR (Custodial, Severe, Institutional)								
H-12	Speech Handicaps								
H-13	Speech and Hearing				6-21				X
H-14	Special Learning Disabilities 3/		6-13	14-21				X	
H-15	Brain Injured								
H-16	Physically Handicapped 4/		6-13	14-21	6-21	X		X	
H-17	Homebound 5/				6-21				X

Kentucky

1/ If no entry is shown, category is not applicable to the state 4/ Called "orthopedically handicapped"

2/ Includes severely Hard of Hearing 5/ Includes hospital teaching

3/ Called "neurologically impaired"

\*Age range for institutions

State Name: Kentucky		Enrollments In Special Education			Data Period 1968 - 1969		
Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type				Enrollment Waiting List
			Residen- tial Special Class	Special School	Day Special Class	Itinerant	Waiting for Diagnosis
H-1	Blind	Preschool	30				
		Elementary	55				
		Secondary	76				
H-2	Partially Seeing	Elementary			31		
		Secondary			16		
		Unspecified			4		
H-4	Deaf and Severely Hard of Hearing	Preschool	8				
		Elementary	264		34		
		Secondary	52		23		
H-5	Hard of Hearing	Elementary			19		
		Secondary			30		
H-7	Emotionally Disturbed	Preschool	5				
		Elementary	7				
		Secondary	11				
		Unspecified			14		
H-9	EMR	Elementary			5539		
		Secondary			2606		
H-10	TMR	Unspecified	129				
H-13	Speech and Hearing Handicaps	Unspecified	287	170	674		50 (institutions)
H-14	Neurologically Impaired	Unspecified		.	314	9647	
(continued)							

Kentucky

## Enrollments In Special Education

**State Name: Kentucky**

[illegible]

## Crippled and Special Health Problems

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types			
				Residential Special Class	Special School	Day Special Class	Itinerant
H-1	Blind	Teacher	Preschool	1/5			
			Elementary	1/7			
			Secondary	1/10			
H-2	Partially Sighted	Teacher	All Grades			1/10	
H-4	Deaf and Severely Hard of Hearing	Teacher	Preschool	1/6			
			Elementary	1/6		1/12	
			Secondary	1/8		1/12	
		Audiometrist	All Grades	1/300			
H-5	Hard of Hearing	Teacher	All Grades			1/20	
H-7	Emotionally Disturbed	Teacher	All Grades	1/4		1/10	
		Speech Therapist	All Grades	1/25			
		Psychologist	All Grades	1/100			
H-9	EMR	Teacher	All Grades	1/10		1/20	
H-10	TMR	Teacher	All Grades	1/5	1/12	1/12	
H-13	Speech and Hearing	Therapist	All Grades				1/100
H-14	Neurologically Impaired	Teacher	All Grades			1/8	
H-16	Physically Handicapped*	Orthopedic Teacher	All Grades			1/20	1/12
H-18	Multiple Handicap	Teacher (EMR)	All Grades	1/8			
	Multiple Handicap	Teacher (TMR)	All Grades	1/6			

\* Crippled and Special Health Problems

State Name: Kentucky

Special Education Personnel Estimated Requirements/Employment Comparison 1/

Data Period 1968-69

Occupation	Degree Level	Certified	Education Level											
			Preschool		Elementary		Secondary		Ungraded		Unspecified		Total	
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed
T/Blind	BA	X				8			6					14
	MA	X				1			1					2
	Total		6	3/	8	9	8	7				2.2	16	
T/Physical Education for Blind	BA	X				1			1					2
	Total				2/	1	2/	1				2/	2	
T/Music Teacher for Blind	BA	X				1			1					2
	Total				2/	1	2/	1				2/	2	
T/Art Teacher for Blind	BA	X							1					1
	Total								1			2/	1	
O/Peripatologist	BA	X							1					1
	Total								1			2/	1	
T/Partially Sighted	BA	X				2			2					4
	MA	X				2								2
	Total		3	3/	2	4	1	2			6	6		
T/Deaf						4								4
	BA			1		16			5					22
	MA					8			4					12
	Total		1	1	47	28	8	9			56	38		
T/Vocational Teacher for Deaf	None	X				5								5
	BA	X				5								5
	Total					10					2/	10		

1/ Based upon enrollment data only (no waiting list data available).

2/ Calculations cannot be made due to missing data

3/ Employment data unavailable

Unk-Unknown

Kentucky



State Name: Kentucky Special Education Personnel Estimated Requirements/Employment Comparison 1/ Data Period 1968-69

Occupation	Degree Level	Certified	Education Level											
			Preschool		Elementary		Secondary		Ungraded		Unspecified		Total	
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed		
T=Teacher Th=Therapist O=Other	UK									2/	3	2/	3	
A/Deaf	UK						2/	2			2/	2	2/	2
O/Vocational Counselor for Deaf	MA	X		1			4/					1		1
O/Audiometrist	Total			1						2/	1	1	3/	1
T/Hard of Hearing	BA	X			1			2						3
	MA	X			1			2						3
	Total			1	2	2	4						3	6
T/Emotionally Disturbed	None	X						1				2		3
	BA	X						1						1
	MA	X	1		1			3						5
	Total				3									3
O/Psychologist	Total		1	1	4	3	5		4/	2/	2	6	12	
	MA	X									1	1	1	
	Total									1	1	1	1	
T/EMR	None	X			14		2				24		40	
	BA	X			230		114				7		351	
	MA	X			54		24				15		93	
	UK	X									6		6	
	Total				298	130	140			17	52	423	490	
T/TMR	None										1		1	
	BA										71		71	

1/ Based upon enrollment data only (no waiting list data available)

2/ Calculation cannot be made due to missing data

3/ Calculation incomplete due to missing data

4/ Employment data unavailable

UK-Unknown

Kentucky

1/ Based upon enrollment data only (no waiting list data available)

4/ Employment data unavailable

Uk-Unknown

2/ Calculation cannot be made due to missing data

3/ Calculation incomplete due to missing data

State Name:	Kentucky	Special Education Personnel Estimated Requirements/Employment Comparison	Data Period 1968-1969
		1/	

Data Period 1968-1969

## Kentucky

State Number	Occupation	Degree Level	Certified	Education Level												Total		
				Preschool		Elementary		Secondary		Ungraded		Unspecified						
				Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	
	T-Teacher	A-Aide																
	Th-Therapist	O-Other																
	T/TMR (cont.)	MA														11		11
		Total														127	83	210
	A/Mentally Retarded	Uk														27	26	53
	Th/Speech and Hearing	None														1		1
		BA														65		65
		MA														24		24
		Dr.														1		1
		Total														98	91	189
	T/Neurologically Impaired	BA														8		8
		MA														11		11
		Total														30	19	49
	T/Orthopedically Impaired	None			1											5		6
		BA			6			5								73		84
		MA						2								18		20
		Uk														2		2
		Total			4	7	4	7								23	27	50

**1 / Based upon enrollment data only (no waiting list data available)**

2/ Calculation cannot be made due to missing data

3/ Calculation incomplete due to missing data

**Uk-Unknown**

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)			Education Program		
		Preschool	Elementary	Secondary	Residential Special	Day Special	
H-1	Blind	3-5	6-11	12-21	X	X	
H-2	Partially Sighted	3-5	6-11	12-21		X	
H-3	Visually Handicapped						
H-4	Deaf	3-5	6-11	12-21	X	X	
H-5	Hard of Hearing	3-5	6-11	12-21		X	
H-6	Hearing Handicapped						
H-7	Emotionally Disturbed	3-5	6-11	12-21		X	
H-8	Mentally Retarded						
H-9	EMR	5-6	7-15	14-21		X	
H-10	TMR	5-6	7-15	16-21		X	
H-11	MR (Custodial, Severe, Institutional)						
H-12	Speech Handicaps	3-5	6-11	12-21		X	
H-13	Speech and Hearing						
H-14	Special Learning Disabilities	3-5	6-11	12-21		X	
H-15	Brain Injured						
H-16	Physically Handicapped	3-5	6-11	12-21	X	X	
H-17	Homebound						
H-28	Cerebral Palsy					X	
H-29	Slow Learner	3-5	6-11	12-21		X	

Louisiana

1/ If no entry is shown, category is not applicable to the state.

[illegible]

Louisiana

1-94

[illegible]

1

- 1/ Based upon enrollment data only (no waiting list data available).
- 2/ Calculation cannot be made due to missing data.
- 3/ Employment data unavailable.
- 4/ Dual personnel/pupil contact ratios.

**1/ Based upon enrollment data only (no waiting list data available).**

2/ Calculation cannot be made due to missing data.

3/ Employment data unavailable.

Maine

NO SPECIAL EDUCATION DATA  
WAS PROVIDED BY THE STATE  
OF MAINE

Maryland

1/ If no entry is shown, category is not applicable to the state.



State Name: Maryland		Personnel/Pupil Contact Ratio		Data Period 1968-1969		Maryland			
Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types					
				Day Special Class	Cooperative Special Class	Itinerant	Resource Room		
H-1	Blind	Teacher	Primary	1/7					
			Intermediate	1/10					
			Secondary	1/12					
			Ungraded			1/7			
		Aide	Primary	1/7					
			Intermediate	1/10					
			Secondary	1/12					
			Primary	1/7					
H-2	Partially Sighted	Teacher	Intermediate	1/12					
			Secondary	1/15					
			Ungraded			1/20			
			Unknown	1/7					
H-4	Deaf	Teacher	Unknown	1/3.5					
H-5	Hard of Hearing	Teacher	Unknown	1/10					
		Aide	Unknown	1/5					
H-7	Emotionally Handicapped	Teacher	Primary		1/10		1/10		
			Intermediate		1/12		1/12		
			Secondary		1/15		1/15		
H-9	EMR	Teacher	Primary	1/10					
			Intermediate	1/15					
			Secondary	1/20					
			Ungraded				1/30		



State Name: Maryland

Enrollments In Special Education

Data Period 1968 - 1969

Maryland

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List
			Residen- tial Special Class	Special Schools	Day Special Class	Coopera- tive Special Class	Itinerant	
H-2	Partially Sighted	Primary			58			
		Intermediate			4			
		Secondary			39			
H-6	Hearing Handicapped	Preschool	12				70	
		Primary	215	316			329	
		Intermediate		177			143	
		Secondary	83	89			107	
H-7	Emotionally Handicapped	Primary			247			
		Intermediate			209			
		Secondary			45			
		Ungraded			20			
H-9	EMR	Primary	83		5,087			
		Intermediate			6,107			
		Secondary	294		8,296			
H-10	TMR	Primary	142		1,499			
		Intermediate			693			
		Secondary			659			
H-12	Speech Handicaps	Primary			181		25,000	
		Intermediate			51			
H-14	Special Learning Disabilities	Primary			1,964			
		Intermediate			505			
(Cont.)								



Data Period 1968-69

1/ Based upon employment data only (no waiting list data available)  
2/ Calculations cannot be made due to missing data  
3/ Employment data unavailable  
4/ Calculations incomplete due to missing data

## State Name: Massachusetts Overview of Special Education Programs

Data Period 1968..1969

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)						Education Program						
		Pre-school	Elementary		Secondary		Un-graded	Residential	Special Schools	Day Special Class	Coop. Class	Resource Room	Itinerant	Supplemen-Inst.
			Pri.	Inter.	Jr. H.	Sr. H.								
H-1	Blind	pvt 3-6	6-12	13-21			X		X		X	X	X	X
H-2	Partially Sighted		6-12	13-21					X	X	X	X	X	X
H-3	Visually Handicapped													
H-4	Deaf	3-4½	pub 4½-7 pvt 4½-15	pub 8-11			pvt	X	X					
H-5	Hard of Hearing													
H-6	Hearing Handicapped													
H-7	Emotionally Disturbed			8-11	12-14	15-21	pvt	pvt	X	X	X	X		
H-8	Mentally Retarded													
H-9	EMR	3-7	6-8	9-11	12-14	15-21			NO DATA					
H-10	TMR	3-7	6-8	9-11	12-14	15-21			X					
H-11	MR (Custodial)						3-21	X						
H-12	Speech Handicaps <sup>2/</sup>						6-21					X		
H-13	Speech and Hearing													
H-14	Special Learning Disabilities													
H-15	Brain Injured													
H-16	Physically Handicapped		6-12	13-21			6-21		X			X		
H-17	Homebound													
H-18	Blind Retarded & Emotionally Disturbed						1-8		pvt	NO DATA				
H-19	Aphasic Children	pvt 3-7	6-12	13-21			pvt		pvt					
H-20	Learning Impairment <sup>3/</sup>						6-21		pvt	X	X	X	X	

<sup>1/</sup> If no entry is shown, category is not applicable to state<sup>2/</sup> Includes Hard of Hearing<sup>3/</sup> Expansion of Special Learning Disabilities, includes perceptually handicapped

Massachusetts

**State Name: Massachusetts**

[illegible]

Data Period 1968-1969

Personnel/Pupil Contact Ratio

State Name: Massachusetts

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types						Resource Room	Itinerant	Supplementary Instit.
				Residential Class	Special Schools	Day Special Class	Cooperative Class					
H-1	Blind	Teacher	Preschool	1/5								
			Elementary	1/10					1/9	1/5		
			Secondary	1/12					1/12	1/10		
			Ungraded	1/7								
H-2	Partially Sighted	Teacher	Elementary			1/8	1/12	1/12	1/14	1/12	1/12	1/1
			Secondary			1/12	1/14	1/14	1/16	1/15	1/15	1/1
H-4	Deaf	Teacher	Preschool		1/8	1/8						
			Elementary	1/10	1/10	1/8						
H-5	Hard of Hearing	Aide	Preschool			1/8						
		Teacher	Ungraded							1/25		
		Therapist	Ungraded							1/90		
H-7	Emotionally Disturbed	Teacher	Elementary			1/10						
		Aide	Elementary			1/8	1/30					
		Therapist	All Grades			1/8				1/90		
H-12	Speech Handicaps	Teacher	Elementary			1/10						
		Teacher	Secondary			1/10						
		Teacher/Home Bound	Elementary							1/5		
H-19	Aphasic	Aide	Secondary							1/5		
		Teacher	All Grades		1/8	1/10						
		Teacher	All Grades									
H-27	Learning Impairments	Teacher	All Grades						1/8			





State Name: Massachusetts

[illegible]

11/ Based upon enrollment data only (no waiting list data available)

22/ Calculation incomplete due to missing data based upon environment data only (no waiting)

33/ Calculation cannot be made due to missing data

Employment data unavailable

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)				Education Program			
		Preschool	Elementary	Secondary	Ungraded				
H-1	Blind								
H-2	Partially Sighted								
H-3	Visually Handicapped	0-5	6-12	13-21	22-25				
H-4	Deaf								
H-5	Hard of Hearing								
H-6	Hearing Handicapped	0-5	6-12	13-21	22-25				
H-7	Emotionally Disturbed	0-5	6-12	13-21	22-25				
H-8	Mentally Retarded								
H-9	EMR	0-5	6-12	13-21	22-25				
H-10	TMR	0-5	6-12	13-21	22-25				
H-11	MR (Institutionalized)	0-5	6-12	13-21	22-25				
H-12	Speech Handicaps	0-5	6-12	13-21	22-25				
H-13	Speech and Hearing								
H-14	Special Learning Disabilities								
H-15	Brain Injured	0-5	6-12	13-21	22-25				
H-16	Physically Handicapped	0-5	6-12	13-21	22-25				
H-17	Homebound								

<sup>1/</sup> If no entry is shown, category is not applicable to the state.

Michigan

State Name: Michigan Enrollments In Special Education Data Period 1968 - 1969

Michigan

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type				Waiting List
			Full Time	Itinerant			
H-3	Visually Handicapped	Preschool	22				
		Elementary	388				
		Secondary	212				
H-6	Hearing Handicapped	Preschool	477				
		Elementary	893				
		Secondary	472				
H-7	Emotionally Disturbed	Preschool	31				NOT AVAILABLE
		Elementary	1920				
		Secondary	543				
H-9	EMR	Preschool	66	46			NOT AVAILABLE
		Elementary	14354	1901			
		Secondary	13161	2377			
H-10	TMR	Preschool	106				
		Elementary	2593				
		Secondary	1513				
H-12	Speech Handicaps	Preschool		1281			
		Elementary		72877			
		Secondary		11068			
H-15	Brain Injured	Preschool	340				
		Elementary	3641				
		Secondary	1383				

[illegible]



State Name: Minnesota

Overview of Special Education Programs

Data Period 1968 - 1969

Minnesota

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program		
		Preschool	Primary	Inter- mediate	Secondary	Residential	Special Schools	
H-1	Blind							
H-2	Partially Sighted							
H-3	Visually Handicapped	0-4	5-9	10-12	13-21	X		
H-4	Deaf							
H-5	Hard of Hearing							
H-6	Hearing Handicapped	0-4	5-9	10-12	13-21	X		
H-7	Emotionally Disturbed							
H-8	Mentally Retarded							
H-9	EMR	0-5	6-9	10-12	13-21			
H-10	TMR	0-5	6-9	10-12	13-21			
H-11	MR(Custodial, Severe, Institutional)	0-5	6-12	13-20			X	
H-12	Speech Handicaps	0-4	5-9	10-12	13-21			
H-13	Speech and Hearing							
H-14	Special Learning Disabilities *	0-4	5-9	10-12	13-21			
H-15	Brain Injured							
H-16	Physically Handicapped							
H-17	Homebound							
H-18	Multiple Handicapped (Crippled)	0-4	5-9	10-12	13-21			

1/ If no entry is shown, category is not applicable to the state.

\* Includes Emotionally Disturbed

[illegible]



208

## State Name: Minnesota

[illegible]

1/ Calculations cannot be made due to missing data.

**2/ Employment data unavailable.**

**Uk - Unknown**

Mississippi

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)			Education Program					
		Elementary	Secondary		Residential Special Class	Special Schools	Day Special Class	Cooperative Special Class *	Itinerant	Self contained Hearing Program
H-1	Blind									
H-2	Partially Sighted									
H-3	Visually Handicapped									
H-4	Deaf									
H-5	Hard of Hearing									
H-6	Hearing Handicapped	6-14								
H-7	Emotionally									
H-8	Mentally Retarded									
H-9	EMR	6-14	14-21							
H-10	TMR				NO					
H-11	MR (Custodial, Severe, Institutional)									
H-12	Speech Handicaps									
H-13	Speech and Hearing									
H-14	Special Learning Disabilities									
H-15	Brain Injured									
H-16	Physically Handicapped									
H-17	Homebound									
	permissive legislation: 0 to 21 years									
	in practice the range: 6 or 7 to 21 years									

\* Vocational Rehabilitation + EMR

1/ If no entry is shown, category is not applicable to the state

State Name: Mississippi		Enrollments In Special Education				Date Period 1969-70				Mississippi			
Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type				Waiting List						
		* Available only by class per handicap or total of all special education pupils											



[illegible]

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program				
		Preschool	Elementary	Secondary	Unspecified		Residential School	Special School	Day Special Class	Itinerant
H-1	Blind									
H-2	Partially Sighted									
H-3	Visually Handicapped		6-12	13-18			X		X	
H-4	Deaf									
H-5	Hard of Hearing									
H-6	Hearing Handicapped	3-5	6-12	13-18			X		X	
H-7	Emotionally Disturbed	0-5	6-12	13-18	13-18		X		X	
H-8	Mentally Retarded									
H-9	EMR	4-5	6-12		6-20					
H-10	TMR	4-5			6-20		X	X	X	
H-11	MR (Custodial, Severe, Institutional)									
H-12	Speech Handicaps				6-18				X	
H-13	Speech and Hearing									
H-14	Special Learning Disabilities		6-12						X	
H-15	Brain Injured									
H-16	Physically Handicapped		6-12		6-18				X	X
H-17	Homebound									

Missouri

1/ If no entry is shown, category is not applicable to the state.  
In Missouri, the Department of Mental Health also operates nine (9) Regional Diagnostic Clinics which serve over 1500 mentally retarded children each year. These were not included because of the high turnover nature of the services provided by clinics.

State Name: Missouri      Enrollments In Special Education      Data Period 1968 - 1969

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type				Waiting List
			Residential	Special	Day Special Class	Itinerant	
H-3	Visually Handicapped	Elementary	118		100		
		Secondary	80		28		
H-6	Hearing Handicapped	Elementary	208		447		
		Secondary	135		109		
H-7	Emotionally Disturbed	Preschool	60				
		Elementary	450		417		
		Secondary	420		267		
H-9	EMR	Preschool	150				
		Elementary			12264		
		Secondary			5726		
		Ungraded	700				
H-10	TMR	Preschool	150				
		Elementary			261		
		Secondary			117		
		Ungraded	500	1762			Spec. 20 schools
H-12	Speech Handicaps	Ungraded				26862	
H-14	Special Learning Disabilities	Elementary			238		
H-16	Physically Handicapped	Elementary			560		
		Secondary			140		
		Ungraded				1003 homebound	

Missouri



Data Period 1968-1969

Personnel/Pupil Contact Ratio

State Name: Missouri

Missouri

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types			
				Resident	Special	Day Special	Itinerant
H-3	Visually Handicapped	Teacher	Elementary	1/12		1/6-1/12	
			Secondary	1/12		1/6-1/12	
			Ungraded	1/12			
H-6	Hearing Handicapped	Teacher	Elementary	1/8		1/6-1/14	
			Secondary	1/8		1/6-1/14	
			Ungraded	1/8			
H-7	Emotionally Disturbed	Teacher	Preschool	1/12			
			Elementary	1/12		1/6-1/10	
			Secondary	1/12		1/6-1/10	
		Counselor	Preschool	1/50			
			Elementary	1/50			
			Secondary	1/50			
H-9	EMR	Teacher	Preschool	1/25			
			Elementary			1/15-1/20	
			Secondary			1/15-1/20	
			Ungraded	1/25			
		Counselor	Preschool	1/100			
			Ungraded	1/100			
			Preschool	1/25			
H-10	TMR	Teacher	Ungraded	1/25	1/10	1/10-1/15	
		Counselor	Preschool	1/100			
			Ungraded	1/100			

[illegible]

State Name: Missouri Special Education Personnel Estimated Requirements/Employment Comparison 1/ Data Period 1968-1969

Occupation	Degree Level	Preschool	Education Level										Unspecified	Total
			Elementary		Secondary		Ungraded		Missouri					
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed		
T/Teacher Th=Therapist A=Aide O=Other	Uk	X										14		14
	None	Reg		1										1
	BA	Reg		9		10		6						25
	MA	Reg		5		1		2						8
	Total			18-26	15	9-11	11	3/	8	3/	14	27-37 2/	48	
T/Hearing Handicapped	Uk	X										65		65
	None	Reg		6		6		8						20
	BA	Reg		10		11		4						25
	MA	Reg				2		1				3/	3	
	Total			59-101	16	24-35	19	3/	13	3/	65	83-136 2/	113	
T/Emotionally Disturbed	Uk	X										75		95
	BA	X		3		17								37
	MA	X		4		17								40
	Total		5	7	79-107	36	61-79	34		3/	75	140-186	152	
	MA	X		1		6		4					11	
O/Counselor for Emotionally Disturbed	Total		1	1	9	6	8	4				18	11	
	Uk	X									1157		1157	
	BA	X		5				21					26	
	MA	X		1				8					9	
	Total		6	6	613-817	4/ 286-381	4/ 28	29	3/	1157	933-1232	1192		
(cont.)														
1/ Based upon enrollment data only (no waiting list data available)														
2/ Calculations incomplete due to missing data														
3/ Calculations cannot be made due to missing data														
4/ Employment data unavailable														
Uk - Unknown Reg - At least regular education certificate - uncertain of special education certification														

Missouri

State Name: Missouri		Special Education Personnel Estimated Requirements/Employment Comparison 1/										Data Period 1968-1969					
Occupation		Degree Level	Preschool	Elementary				Secondary				Ungraded		Unspecified		Total	
				Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed		
T/Teacher Th=Therapist O=Other T/TMR	UK	X												26		26	
	None	X											41			41	
	BA	X	5									71				76	
	MA	X	1									7				8	
	Total		6						196 <sup>2/</sup>	119		26	202 <sup>2/</sup>	151			
O/Counselor for TMR	MA	X	1								2					3	
	Total		1							5	2			6	3		
	None	X									31					31	
T/Charge, TMR	BA	X									20					20	
	MA	X									6					6	
	Total									176	57			176	57		
	None										72					72	
A/TMR	Total									176	72			176	72		
	UK	X								214-335	284			214-335	284		
	MA	X												23-39	24		
Th/Speech T/Special Learning Disabilities O/Counselor for EMR	UK	X			23-39	24											
	MA	X	1								2				3		
	Total		3							7	2			10	3		
T/Physically Handicapped	UK	X			46-56	4/	11-14	4/	1003	1166					1060-1073	1166	

1/ Based upon enrollment data only (no waiting list available)

2/ Calculations incomplete due to missing data

4/ Employment data unavailable

Missouri

1/ Based upon enrollment data only (no waiting list available)

2/ Calculations incomplete due to missing data

4/ Employment data unavailable

State Name: Missouri



Data Period 1968 -1969

[illegible]

1/ Based upon enrollment data only (no waiting list data available)

3/ Calculations cannot be made due to missing data

**Uk - Unknown**

Missouri

State Name: Montana Overview of Special Education Programs Data Period 1969 - 1970

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program				
		Preschool	Elementary	Secondary		Residential Class	Special Class in Regular Sch.	Cooperative Special Class	Itinerant	
H-1	Blind	3-6	7-14	14-19		X		X		
H-2	Partially Sighted		7-13					X		
H-3	Visually Handicapped									
H-4	Deaf	3-6	6-14	14-19		X			X	
H-5	Hard of Hearing	6-8	10-13				X	X		
H-6	Hearing Handicapped									
H-7	Emotionally Disturbed		5-12				X			
H-8	Mentally Retarded									
H-9	EMR		6-16	16-19			X			
H-10	TMR	5-7	6-20				X			
H-11	MR (Custodial, Severe, Institutional)									
H-12	Speech Handicaps		6-14	14-18					X	
H-13	Speech and Hearing									
H-14	Special Learning Disabilities									
H-15	Brain Injured									
H-16	Physically Handicapped		7-14				X			
H-17	Homebound									

Montana

1/ If no entry is shown, category is not applicable to the state.

[illegible]

### Personnel/Pupil Contact Ratio

**State Name: Montana**

Data Period 1969 -1970

### Personnel/Pupil Contact Ratio

**State Name: Montana**

\* Only one personnel/pupil ratio for teachers in all handicaps and education levels. Therapist ratio is flexible and not defined.



State Name:	Montana	Special Education Personnel Estimated Requirements/Employment Comparison <sup>1/</sup>	Data Period	1969- 1970
<p>1/</p>				

[illegible]

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program				
		Preschool	Elementary	Secondary	Ungraded	Residential School	Special School	Day Special Class	Resource Room	Itinerant
H-1	Blind									
H-2	Partially Sighted									
H-3	Visually Handicapped	0-5	5-13	14-17		X	X	X	X	X
H-4	Deaf									
H-5	Hard of Hearing									
H-6	Hearing Handicapped	0-5	5-13	14-17		X	X	X		X
H-7	Emotionally (Disturbed/Handicapped)	0-5	5-13	14-17		X	X	X	X	
H-8	Mentally Retarded									
H-9	EMR		5-13	14-17		X	X	X	X	
H-10	TMR				5-21	X	X			
H-11	MR (Custodial, Severe, Institutional)									
H-12	Speech Handicaps	0-5	5-13	14-17	5-21	X	X		X	X
H-13	Speech and Hearing									
H-14	Special Learning Disabilities		5-13	14-17				X		
H-15	Brain Injured					X	X		X	X
H-16	Physically Handicapped		5-13	14-17						
H-17	Homebound									

1/ If no entry is shown, category is not applicable to the state

1/ If no entry is shown, category is not applicable to the state

[illegible]

Nebraska

67-68

## Personnel/Pupil Contact Ratio

State Name: Nebraska

Data Period 68-69

Nebraska

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types				
				Rest- dental School	Special School	Day Special	Resource	Itinerant
H-3	Visually Handicapped	Teacher	Preschool		1/8 min			
			Elementary	?				
			Secondary	?				
			Ungraded				1/8 min	
		Aide	Preschool		none			
H-6	Hearing Handicapped	Teacher	Preschool		1/8-12			
			Elementary	1/8-12	1/8-12			
			Secondary	1/8-12				
		Therapist	Ungraded		1/8-30*		1/8-30*	1/8-30*
H-7	Emotionally Disturbed	Teacher	Elementary	1/5-10	1/4-12	1/4-12	1/4-12	
			Secondary	1/5-10				
H-9	EMR	Teacher	Elementary	1/8-20	1/8-20	1/8-20	1/8-20	
			Secondary	1/8-30	1/8-30		1/8-30	
H-8	Mentally Retarded	Teacher	Preschool	1/30				
		Aide	Preschool	1/30				
		Teacher	Elementary	1/30				
		Aide	Elementary	1/30				
H-10	TMR	Teacher	Ungraded	1/5-10	1/5-10			
		Aide	Ungraded	1/5-10	1/5-10			
H-12	Speech Handicaps	Speech Therapist	Preschool					1/75*
		Therapist	Elementary				1/75*	1/75*
* Case load								

[illegible]

67-68  
Data Period 68-69State Name: Nebraska Special Education Personnel Estimated Requirements/Employment Comparison<sup>1/</sup>

Nebraska

Occupation	Degree Level	Enrolled	Education Level										Total	
			Preschool	Elementary	Secondary	Ungraded	Unspecified	Estimated	Employed	Estimated	Employed	Estimated	Employed	Estimated
T/Teacher Th-Therapist	A=Alde O=Other		Estimated	Employed	Estimated	Employed	Estimated	Employed	Estimated	Employed	Estimated	Employed	Estimated	Employed
T/Visually Handicapped	BA	X	1.5						1				2.5	
	MA		1										1	
	Total		3/	2.5				3/	1			3/	3.5	
	None													
A/Visually Handicapped Th/Hearing Handicapped	BA	X							2				2	
	MA	X							4				4	
	Total							3/	6			3/	6	
	None													
T/Emotionally Disturbed	BA	X	1	11	3								15	
	MA	X		3	1								4	
	Total		3/	7-142/	4-8	4						11-222/	19	
	None			3/	4							3/	4	
A/Emotionally Disturbed T/EMR	BA	X	3										3	
	Total		3/	5-122/	4/							5-122/	3	
	None		3/	2								3/	2	
	BA	X		3					3				6	
T/Mentally Retarded	MA	X		1									1	
	Total			3/	4				3/	3		3/	7	
	None			3/	6									
	BA	X			1.5							3/	6	
A/Mentally Retarded T/Physically Handicapped	BA	X		2.5									4	
	Total			62/	52/	1.5						112/	4	
	None													
	BA	X												

<sup>1/</sup> Based upon enrollment data only (no waiting list data available)<sup>2/</sup> Calculations incomplete due to missing data<sup>3/</sup> Calculation cannot be made due to missing data<sup>4/</sup> Employment data unavailable

[illegible]

State Name: Nevada

Overview of Special Education Programs

Data Period 1968 - 1969

Nevada

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)				Education Program			
		Unspecified				Residential	Special	Day Special	Resource Room
H-1	Blind								
H-2	Partially Sighted								
H-3	Visually Handicapped								
H-4	Deaf	3-21						X	
H-5	Hard of Hearing	3-21						X	
H-6	Hearing Handicapped								
H-7	Emotionally Disturbed	3-21				X	X	X	
H-8	Mentally Retarded								
H-9	EMR	3-21						X	
H-10	TMR								
H-11	MR (Custodial, Severe, Institutional)								
H-12	Speech Handicaps								
H-13	Speech and Hearing								
H-14	Special Learning Disabilities								
H-15	Brain Injured								
H-16	Physically Handicapped	3-21						X	
H-17	Homebound	3-21							X
H-18	Multiple Handicapped	3-21						X	

<sup>1/</sup> If no entry is shown, category is not applicable to the state



[illegible]

State Name: Nevada		Personnel/Pupil Contact Ratio		Data Period 1968-1969		Nevada				
Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types						
H-1	Blind	Teacher	Preschool	Day	Special					
			Primary	1/5						
			Elementary	1/5						
			Intermediate	1/6						
			Secondary	1/8						
		Aide (with teacher)	Preschool	1/8						
			Primary	1/9						
			Elementary	1/10						
			Intermediate	1/12						
			Secondary	1/12						
H-2	Partially Sighted	Teacher	Preschool	1/6						
			Primary	1/6						
			Elementary	1/8						
			Intermediate	1/8						
			Secondary	1/10						
		Aide (with teacher)	Preschool	1/10						
			Elementary	1/12						
			Secondary	1/14						
			Preschool	1/5						
			Elementary	1/6						
H-4	Deaf	Teacher	Intermediate	1/8						
			Secondary	1/8						

State Name: Nevada		Personnel/Pupil Contact Ratio		Data Period 1968-1969		Nevada			
Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types		Day	Special		
H-5	Hard of Hearing	Teacher	Preschool			1/5			
			Primary			1/5			
			Elementary			1/6			
			Intermediate			1/8			
			Secondary			1/8			
H-7	Emotionally Disturbed	Teacher	Preschool			1/6			
			Primary			1/6			
			Elementary			1/8			
			Intermediate			1/10			
			Secondary			1/10			
H-9	EMR	Teacher	Preschool			1/8			
			Primary			1/10			
			Elementary			1/12			
			Intermediate			1/14			
			Secondary			1/14			
		Aide (with teacher)	Preschool			1/12			
			Primary			1/14			
			Elementary			1/16			
			Intermediate			1/18			
			Secondary			1/18			
H-10	TMR	Teacher	Preschool			1/6			
			Primary			1/8			

State Name: Nevada		Personnel/Pupil Contact Ratio		Data Period 1968-1969		Nevada			
Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types		Day Special			
H-10	TMR (cont.)	Teacher	Elementary	1/8					
			Intermediate	1/10					
		Aide (with teacher)	Preschool	1/10					
			Primary	1/12					
			Elementary	1/12					
H-12	Speech Handicaps	Therapist	Intermediate	1/14					
			All Grades	1/70					
			Preschool	1/6					
			Primary	1/6					
			Elementary	1/8					
H-16	Physically Handicapped	Teacher	Intermediate	1/10					
			Secondary	1/12					
			Preschool	1/10					
			Primary	1/10					
			Elementary	1/12					
		Aide (with teacher)	Intermediate	1/14					
			Secondary	1/16					
			All Grades	1/10					
			Preschool	1/5					
			Primary	1/5					
H-17	Homebound	Teacher	Elementary	1/8					
H-18	Multiple Handicapped	Teacher	Intermediate	1/10					

State Name: Nevada		Personnel/Pupil Contact Ratio		Data Period 1968-1969		Nevada				
Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types		Day Special				
H-18	Multiple Handicapped (cont.)	Teacher Aide (with teacher)	Secondary	1/10						
			Preschool	1/9						
			Primary	1/9						
			Elementary	1/12						
			Intermediate	1/14						
			Secondary	1/14						



Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program				
		Preschool	Elementary	Secondary	Ungraded	Residential School	Special School	Day Special Class	Resource Room	Itinerant
H-1	Blind	3-5	5-12	13-18						X
H-2	Partially Sighted									
H-3	Visually Handicapped									
H-4	Deaf	4-5	6-12	13-20		X	X	X		
H-5	Hard of Hearing									
H-6	Hearing Handicapped									
H-7	Emotionally (Disturbed/Handicapped)		5-12	13-18	5-20	X		X	X	X
H-8	Mentally Retarded									
H-9	EMR		5-12	13-18		X	X	X		
H-10	TMR		5-12	13-18	5-20	X	X	X		
H-11	MR (Custodial, Severe, Institutional)									
H-12	Speech Handicaps									
H-13	Speech and Hearing									
H-14	Special Learning Disabilities		5-12	13-18			X			
H-15	Brain Injured									
H-16	Physically Handicapped		5-12	13-18			X			X
H-17	Homebound									

1/ If no entry is shown, category is not applicable to the state.

[illegible]



**\*Add 2-4 children to class**

**Fun**

- 1/ Based upon enrollment data only (no waiting list data available).
- 2/ Calculations cannot be made due to missing data.
- 3/ Calculations incomplete due to missing data (estimated requirements).
- 4/ Employment data unavailable.

## State Name: New Jersey      Overview of Special Education Programs      Data Period 1968-69

New Jersey

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)					Education Program					
		Ungraded					Residential Special Class	Special School	Day Special Class	Cooperative Special	Individual Instruction	Resource Room
H-1	Blind											
H-2	Partially Sighted											
H-3	Visually Handicapped	5-20										
H-4	Deaf <sup>2/</sup>	5-20										
H-5	Hard of Hearing <sup>2/</sup>	5-20										
H-6	Auditory Handicapped <sup>3/</sup>	5-20										
H-7	Emotionally	5-20										
H-8	Mentally Retarded											
H-9	EMR	5-20										
H-10	TMR	5-20										
H-11	MR (Custodial, Severe, Institutional)											
H-12	Communication Handicaps	5-20										
H-13	Speech and Hearing											
H-14	Potentially Severe Learning Disability	5-20										
H-15	Brain Injured											
H-16	Orthopedically Handicapped	5-20										
H-17	Homebound											
H-18	Multiple Handicapped	5-20										
H-20	Chronically Ill	5-20										
H-23	Socially Maladjusted	5-20										

<sup>1/</sup> If no entry is shown, category is not applicable to the state  
<sup>2/</sup> Broken out in data  
<sup>3/</sup> Recognized in policy

[illegible]

New Jersey

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List
			Residential Special Class	Day Special Class	Cooperative Special	Individual Instruction	Resource Room	
H-4	Deaf	Preschool	21	21	50	1		
		Elementary	231	24	139	3	6	
		Secondary	92	17	41		5	
		Ungraded	147	3	4			
H-5	Hard of Hearing	Preschool			13	3		
		Elementary			139	22	20	
		Secondary			15	14	1	
		Ungraded				9	1	

\* Only the number of classes or units are available at state level except for the above

[illegible]

State Name: New Jersey

Special Education Personnel Estimated Requirements/Employment Comparison 1/

Data Period 1968-69

Occupation

T-Teacher

A-Aide

Th-Therapist

O-Other

Degree Level

None

BA

MA

Total

None

BA

MA

Total

None

BA

MA

Total

None

BA

MA

DR

Uncer

Total

None

BA

MA

Total

None

BA

MA

Total

Preschool

Esti-  
mated

Employed

Elementary

Esti-  
mated

Employed

Secondary

Esti-  
mated

Employed

Ungraded

Esti-  
mated

Employed

Unspecified

Esti-  
mated

Employed

Total

Esti-  
mated

Employed

T/Visually Handicapped

None

BA

MA

Total

None

BA

MA

Total

T/Hearing Handicapped

None

BA

MA

Total

None

BA

MA

Total

T/EMR

None

BA

MA

DR

Uncer

Total

None

BA

MA

Total

T/Speech Handicaps

None

BA

MA

Total

None

BA

MA

Total

T/Physically Handicapped

None

BA

MA

Total

None

BA

MA

Total

1/ Calculations cannot be made due to missing data

New Jersey

Special Education Personnel Estimated Requirements/Employment Comparison 17

**State Name: New Jersey**

[illegible]

1/ Calculations cannot be made due to missing data



Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)				Education Program			
		Preschool	Elementary	Secondary	All Grades	Residential School	Day Special Class	Cooperative Class	Itinerant
H-1	Blind								
H-2	Partially Sighted								
H-3	Visually Handicapped	3-5	6-12	13-21		X	X		
H-4	Deaf								
H-5	Hard of Hearing								
H-6	Hearing Handicapped	3-5	6-12	13-21		X	X		
H-7	Emotionally Disturbed		6-12	13-21		X	X	X	
H-8	Mentally Retarded (combined classes)		6-12	13-21			X		
H-9	EMR		6-12	13-21		X	X	X	
H-10	TMR	2-4	5-13	14-21		X	X	X	
H-11	MR (Custodial, Severe, Institutional)								
H-12	Speech Handicaps				6-21				X
H-13	Speech and Hearing								
H-14	Special Learning Disabilities		6-12	13-21			X		
H-15	Brain Injured								
H-16	Physically Handicapped		6-12	13-21			X	X	
H-17	Homebound				6-21				X
H-25	Other Health Impaired (more than 1 handicap per class)		6-12	13-21		X			

<sup>1/</sup> If no entry is shown, category is not applicable to the state.

State Name: New Mexico

Enrollments In Special Education

Date Period 1969-1970

New Mexico

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type				Waiting List
			Residen- tial School	Day Special Class	Coopera- tive Class	Itinerant	
H-3	Visually Handicapped	Preschool	3				NO DATA AVAILABLE
		Elementary	54				
		Secondary	71				
H-6	Hearing Handicapped	Preschool	44	1			
		Elementary	150	26			
		Secondary	44				
H-7	Emotionally Disturbed	Preschool		1			
		Elementary		91	48		
		Secondary	80	162	24		
H-8	Mentally Retarded.	All Grades	180				
		Elementary		58			
		Secondary		48			
H-9	Educable Mentally Retarded	Elementary	46	1182	492		
		Secondary	76	870	344		
		All Grades		68			
H-10	Trainable Mentally Retarded	Elementary	123	128	50		
		Secondary	108	45			
		All Grades		102			
H-12	Speech Handicapped	All Grades				*	
H-14	Special Learning Disabilities	All Grades		48 **			
H-16	Physically Handicapped	Elementary		42	28		
		Secondary		14			

\* No data available, program not officially special education  
 \*\* Experimental programs - handicap in process of being legalized



**State Name:** New Mexico

**\*\* This handicap category is in process of being defined**

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types			
				Residential School	Day Special Class	Cooperative Class	Itinerant
H-3	Visually Handicapped	Teacher	Preschool	1/6			
			Elementary	1/8	1/12		
			Secondary	1/8	1/12		
H-6	Hearing Handicapped	Teacher	Preschool	1/5			
			Elementary	1/8	1/12		
			Secondary	1/8	1/12		
H-7	Emotionally Disturbed	Teacher	1/10	1/8	1/12		
		Aide		1/8			
H-8	Mentally Retarded	Teacher		1/10			
		Aide		1/10			
H-9	Educable Mentally Retarded	Teacher		1/18	1/12		
		Aide		1/18	1/12		
				1/18			
H-10	Trainable Mentally Retarded	Teacher		1/16	1/10		
		Aide		1/16	1/10		
H-14	Special Learning Disability	Teacher			1/12 *		
H-16	Physically Handicapped	Teacher		1/12	1/12	1/14	

\* This handicap category is in process of being defined

## New Mexico

New York

NO SPECIAL EDUCATION DATA  
WAS PROVIDED BY NEW YORK STATE

Handicap Code	Handicap Category 1/	Educational Level (Age Ranges)				Education Program				
		Preschool	Elementary	Secondary		Residential	Resource Room	Itinerant	Block Class	Self-Contained (Full-Time)
H-1	Blind									
H-2	Partially Sighted									
H-3	Visually Handicapped		6-12	13-18						
H-4	Deaf									
H-5	Hard of Hearing	1-5	6-12	13-18						
H-6	Hearing Handicapped									
H-7	Emotionally Disturbed		6-12	13-18						
H-8	Mentally Retarded									
H-9	EMR		6-12	13-18						
H-10	TMR		6-12	13-18						
H-11	MR (Custodial, Severe, Institutional)									
H-12	Speech Handicaps		6-12	13-18						
H-13	Speech and Learning									
H-14	Special Learning Disabilities		6-12	13-18						
H-15	Brain Injured									
H-16	Physically Handicapped (Crippled)		6-12	13-18						
H-17	Homebound									

1/ If no entry is shown, category is not applicable to the state.





[illegible]

State Name: North Carolina			Special Education Personnel Estimated Requirements/Employment Comparison										Data Period 1968-1969		North Carolina	
Occupation T=Teacher Th=Therapist O=Other			Degree Level	Certified	Education Level										Total	
					Preschool	Elementary	Secondary	Ungraded	Unspecified	Estimated	Employed	Estimated	Employed	Estimated		
T-Emotionally Disturbed	BA	x											17			17
	MA	x											3			3
	Uk												9			9
	Total												1/	29	1/	29
A-Emotionally Disturbed	BA	x											2			2
	None	x											5			5
	Total												1/	7	1/	7
Th-Occupational	BA	x											1			1
T-EMR	Uk												31		1/	31
T-TMR	None												29			29
	Uk												2			2
	Total												1/	31	1/	31
T-Mentally Retarded	BA	x											9			9
	MA	x											2			2
	None												4			4
	Total												1/	13	1/	13
A-Phychologist	BA												1		1/	1

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)			Education Program					
		Elementary	Secondary	Ungraded	Residential School	Special School	Day Special Class	Resource Room	Itinerant	Supplementary Instruction
H-1	Blind	6-14	15-21		X			X		
H-2	Partially Sighted	6-14	15-21		X					
H-3	Visually Handicapped									
H-4	Deaf	5-14	15-20		X					
H-5	Hard of Hearing	6-14	15-21		X		X			X
H-6	Hearing Handicapped									
H-7	Emotionally Disturbed	6-14	15-21		X				X	X
H-8	Mentally Retarded									
H-9	EMR	6-14	15-21		X		X			
H-10	TMR	6-14	15-21	6-21	X	X	X			
H-11	MR (Custodial, Severe, Institutional)									
H-12	Speech Handicaps			6-21					X	
H-13	Speech and Hearing									
H-14	Special Learning Disabilities	6-14	15-21					X		X
H-15	Brain Injured									
H-16	Physically Handicapped	6-14	15-21		X				X	
H-17	Homebound (included in itinerant)									

North Dakota has Deaf-Blind Children - but no program in state.  
<sup>1/</sup> If no entry is shown, category is not applicable to the state

State Name: North Dakota      Enrollments In Special Education      Date Period 1968-69

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type						Waiting List
			Residential School	Special School	Day Special Class	Resource Room	Itinerant	Supplementary Instruction	
H-1	Blind	Elementary	3			8			Special Education Director makes rough estimate of approximately 2900 children in all areas.
		Secondary	7			6			
H-2	Partially	Elementary	19						
		Secondary	8						
H-4	Deaf	Elementary	55						
		Secondary	24						
H-5	Hard of Hearing	Elementary	8		6			7	
		Secondary	10		0			0	
H-7	Emotionally Disturbed	Elementary	19				4	8	
		Secondary	77				4	8	
H-9	EMR	Elementary	13		817				
		Secondary	44		191				
H-10	TMR	Elementary	73		38				
		Secondary	95		0				
		Ungraded		61					
H-12	Speech Handicaps	Ungraded					4004		
H-14	Special Learning Disabilities	Elementary				244		32	
H-16	Physically Handicapped	Elementary	53				125		
		Secondary	36				63		

North Dakota

State Name: North Dakota			Personnel/Pupil Contact Ratio			Data Period 1968 -69			North Dakota						
Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types											
				Residential School	Special School	Day Special Class	Resource Room	Itinerant	Supplementary Instruction						
H-1	Blind	Teacher	Elementary	none			1/6								
		Teacher	Secondary	none			1/10								
H-2	Partially Sighted	Teacher	Elementary	none											
		Teacher	Secondary	none											
H-3	Visually Handicapped	Teacher	Elementary	none											
		Teacher	Secondary	none											
		Teacher	All Grades	none											
		Teacher/Braille	All Grades	none											
H-5	Hard of Hearing	Teacher	Elementary			6-10									
		Teacher/Supplementary	Elementary								1/10				
H-6	Hearing Handicapped	Teacher	Elementary	none											
		Teacher	Secondary	none											
		Teacher	All Grades	none											
H-7	Emotionally Disturbed	Teacher	Elementary	1/6-15											
		Teacher	Secondary	1/6-15											
		Teacher/Homebound	Elementary							1/5 day					
			Secondary							1/5 day					
		Teacher/Supplementary	Elementary								1/10				
			Secondary								1/10				
		Visiting Counselor	All Grades							1/35 load					
H-8	Mentally Retarded	Teacher	All Grades	none											
H-9	EMR	Teacher	Elementary			6-15									

State Name: North Dakota

Personnel/Pupil Contact Ratio

Data Period 1968-69

North Dakota

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types					Supple- mentary Instruc- tion
				Rest- dental School	Special School	Day Special Resource Room	Itinerant		
H-9	EMR (cont.)	Teacher	Secondary			6-15			
H-10	TMR	Teacher	Elementary			6-12			
		Teacher	All Grades		none				
		Visiting Counselor	All Grades						
		Speech Therapist	All Grades						
H-12	Speech Handicaps	Therapist	All Grades					80-90/wk	
H-14	Special Learning Disa- bilities	Teacher	Elementary			1/10			
		Supplementary Teacher	Elementary					1/10	
H-16	Physically Handicapped	Teacher	Elementary	1/7-14					
		Teacher	Secondary	1/20-22					
		Teacher/Homebound	Elementary				1/5 day		
			Secondary				1/5 day		
		Speech Therapist	All Grades						
		Physical Therapist	All Grades						
		Occupational Therapist	All Grades						
		Rehabilitation Counselor	All Grades						
		Remedial Evaluator	All Grades						
		Psychologist	All Grades						
		Nurse	All Grades						
	All Handicaps	Psychologist	All Grades					1/10 case load	
		Social Worker	All Grades					1/35 case load	
		Psychometrist	All Grades					1/35 case load	

State Name: North Dakota

Special Education Personnel Estimated Requirements/Employment Comparison<sup>1/</sup>

Data Period 1968-69

Occupation T=Teacher Th=Therapist O=Other	Degree Level	Certified	Education Level										Total	
			Preschool		Elementary		Secondary		Ungraded		Unspecified			
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed
T/Visually Handicapped	BA	X		2		1								3
	Uk	X		2		3						3		8
	Total			2/		1 2/						3	2 2/	11
T/Hearing Handicapped	Uncer- tified													7
	BA	X		1										1
	Uk	X		7		4						5		16
Total				2 2/		3/						5	2 2/	24
T/Emotionally Disturbed	BA	X		1		6								7
	Uk	X		197										197
	Total			3 2/		7-13 2/							10-16 2/	204
O/Counselor Emotionally Dis- turbed	MA	X				1						10		11
	Total					3/					1	10	1	11
	Uk	X									3/	10	3/	10
T/Mentally Retarded	None	X				4								45
	BA	X		41		12								53
	Uk	X										10		10
	Total			54-136 2/		82	12-31 2/	16				10	66-167 2/	108
T/TMR	None	X				6								6
	Uk											10		10
	Total			3-6		6	3/					10	3-6 2/	16

1/

Based upon enrollment data only (no waiting list data available)

2/

Calculations incomplete due to missing data

3/

Calculation cannot be made due to missing data

Uk=Unknown

North Dakota

State Name: North Dakota

[illegible]

1/ Based upon enrollment data only (no waiting list data available)

2/ Calculations incomplete due to missing data based upon information available only (no warnings)

33/ Calculation cannot be made due to missing data

Uk-Unknown



State Name: Ohio

Overview of Special Education Programs

Data Period 1968 - 1969

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)			Education Program				
		Preschool	Elementary	Secondary	Residential	Day Special Class	Cooperative Special Class	Itinerant	Unspecified Program
H-1	Blind				X				
H-2	Partially Sighted								
H-3	Visually Handicapped		6-13	13-21		X		X	
H-4	Deaf	3-5	6-13	13-21	X	X			
H-5	Hard of Hearing	3-5	6-13	13-21		X	X	X	
H-6	Hearing Handicapped								
H-7	Emotionally Disturbed		6-13	13-21					X
H-8	Mentally Retarded								
H-9	EMR		6-14	15-21		X			
H-10	TMR								
H-11	MR (Custodial, Severe, Institutional)								
H-12	Speech Handicaps								
H-13	Speech and Hearing		6-12	13-21					X
H-14	Special Learning Disabilities		6-12	13-21					
H-15	Brain Injured								
H-16	Physically Handicapped		6-13	13-21	X	X			
H-17	Homebound								
H-26	Neurologically Handicapped					X			

<sup>1/</sup> If no entry is shown, category is not applicable to the state.

Ohio



[illegible]

State Name: Ohio

Data Period 1968-1969

Ohio

[illegible]

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program			
		Preschool	Elementary	Secondary	All Grades	Residential School	Day Special Class	Cooperative Class	Itinerant
H-1	Blind								
H-2	Partially Sighted								
H-3	Visually Handicapped	2-5			6-21	X	X		
H-4	Deaf								
H-5	Hard of Hearing								
H-6	Hearing Handicapped	2-5			6-21	X	X		
H-7	Emotionally Disturbed				6-21	X	X		
H-8	Mentally Retarded								
H-9	EM Handicapped	2-5	6-11	12-21		X *	X	X	
H-10	TMR	2-5			6-21		X		
H-11	MR (Custodial, Severe, Institutional)								
H-12	Speech Correction				6-21				X
H-13	Speech and Hearing								
H-14	Learning Disabilities				6-21		X		
H-15	Brain Injured								
H-16	Physically Handicapped				6-21	X	X		
H-17	Homebound				6-21				X
H-18	Multiple Handicapped	2-5							X

\*Private School

1/ If no entry is shown, category is not applicable to the state.

State Name: Oklahoma

Enrollments In Special Education

Data Period 1968-69

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List
			Residential School	Day Special Class	Cooperative Class	Itinerant	Estimate of unsegregated population*	
H3	Visually Handicapped	Unspecified	135	44			944	
H6	Hearing Handicapped	Unspecified	241	116			6048	
H7	Emotionally Disturbed	Unspecified		89			9616	
H9	Educable Mentally Handicapped	Preschool	41**					E
		Elementary		2878				L
		Secondary		1235	766			B
		Unspecified	22**	401			9135	A
H10	Trainable Mentally Retarded	Unspecified		808			1232	L
H12	Speech Correction	Unspecified				7917	19295	I
H14	Learning Disabilities	Unspecified		301			9472	A
H16	Physically Handicapped	Unspecified	8	152			936	V
H17	Homebound	Unspecified				873		A
H18	Multiple Handicapped	Unspecified				12		
								T
								O
								N

Oklahoma

\* Based upon prevalence rates  
 \*\* Private School

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types			
				Residential School	Day Special Class	Cooperative Class	Itinerant
H3	Visually Handicapped	Teacher	All Grades	1/5	1/8		
H6	Hearing Handicapped	Teacher	All Grades	1/6	1/8		
H7	Emotionally Disturbed	Teacher	All Grades		1/8		
H9	Educable Mentally Handicapped	Teacher (Mentally Handicapped)	Preschool	1/20			
			Elementary		1/15		
			Secondary		1/15	1/30	
			All Grades	1/7	1/15		
		Vocational Instructor	Secondary		1/40		
H10	Trainable Mentally Retarded	T/Mentally Handicapped	All Grades	1/10	1/40		
H12	Speech Correction	Speech Therapist	All Grades		1/8		1/85
H14	Learning Disabilities	Teacher	All Grades		1/8		
H16	Physically Handicapped	Teacher	All Grades	1/4	1/8		
		Physical Therapist	All Grades		1/40		
H17	Homebound	Teacher (Visiting)	All Grades				1/20
H18	Multiple Handicapped	Teacher	All Grades				1/12
		Social Worker	All Grades				1/12

State Name: Oklahoma Special Education Personnel Estimated Requirements/Employment Comparison 1/ Data Period 1968-1969

Occupation T=Teacher Th=Therapist O=Other	Degree Level	Total Filled O	Education Level										
			Preschool		Elementary		Secondary		Ungraded		Unspecified		
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	
T/Visually Handicapped	Uk	X								49	30	49	30
T/Hearing Handicapped	Uk	X								55	58	55	58
T/Emotionally Disturbed	Uk	X								11	11	11	11
T/Mentally Handicapped	Uk	X	2	2	192	222	108	125		131	93	433	442
Vocational Instructor	Uk						31	2/		12	2	43	2
Th/Speech	Uk	X								92	87	92	87
T/Children with Learning Dis.	Uk	X								38	36	38	36
T/Physically Handicapped	Uk	X								21	18	21	18
Th/Physical	Uk	X								7	2/	7	2/
T/Visiting	Uk	X								44	35	44	35
T/Multiply Handicapped	Uk	X								1	1	1	1
O/Social Worker	Uk	X								1	1	1	1

1/ Based upon enrollment data only (no waiting list data available)

2/ Employment data not available

Uk - Unknown

Oklahoma



State Name: Oregon

Overview of Special Education Programs

Data Period 1957 - 1968

Oregon

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)						Education Program				
		Preschool	Elementary	Secondary	Ungraded	Unspecified	Residential	Day Special Class	Resource Room	Itinerant	Hospital: Rapid Turnover	
H-1	Blind		6-12	13-21			X			X		
H-2	Partially Sighted		6-12	13-21						X		
H-3	Visually Handicapped											
H-4	Deaf	3-5	6-12	13-21			X	X	X	X		
H-5	Hard of Hearing											
H-6	Hearing Handicapped											
H-7	Emotionally Disturbed <sup>2/</sup>		6-12	13-21			X	X			X	
H-8	Mentally Retarded											
H-9	EMR	3-5	6-14	15-21	6-21		X	X				
H-10	TMR	3-5	6-14	15-21			X	X				
H-11	MR (Custodial, Severe, Institutional)											
H-12	Speech Handicaps	3-5				6-21				X		
H-13	Speech and Hearing											
H-14	Special Learning Disabilities <sup>3/</sup>		6-14							X		
H-15	Brain Injured											
H-16	Physically Handicapped	3-5	6-12	13-21			X				X	
H-17	Homebound											
H-20	Chronic Conditions		6-12	13-21							X	

<sup>1/</sup> If no entry is shown, category is not applicable to the state<sup>2/</sup> Called "socially and emotionally maladjusted"<sup>3/</sup> Called "extreme learning problems"<sup>4/</sup> Also called "Crippled-Orthopedic"

State Name: Oregon

Enrollments In Special Education

Data Period 1967 - 1968

Oregon

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List
			Residential Special Class	Day Special Class	Resource Room	Itinerant	Hospital Rapid Turnover	
H-1*	Blind	Preschool	12					
		Elementary	39					
		Secondary	44					
		Ungraded				105		
H-2	Partially Sighted	Unspecified				446		
H-4*	Deaf	Preschool	43	24				
		Elementary	140	85		35		
		Secondary	90		19			
		Unspecified		163				
H-7	Emotionally Disturbed	Elementary	33	52				
		Secondary	161				70	
H-9	EMR	Preschool	70					612
		Elementary	79	3152				
		Secondary	83	1128				
		Ungraded	8					8790
H-10	TMR	Unspecified	195					2255
H-12	Speech Handicaps	Preschool				249		
		Elementary				8928		
		Secondary				228		
H-14	Special Learning Disabilities	Elementary				5140		
H-16	Physically Handicapped	Preschool		20				
		Elementary		82			230	
*Deaf and Blind data for residential program is 1968-1969								

[illegible]

State Name: Oregon

Personnel/Pupil Contact Ratio

Data Period 1967- 1968

Oregon

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types					Itinerant
				Residen- tial Special Class	Day Special Class	Resource Room	Hospital Rapid Turnover		
H-1	Blind	Teacher	Preschool	1/5					
			Elementary	1/6					
			Secondary	1/6					
			All Grades					1/9	
		Counselor	Preschool					1/80	
H-2	Partially Sighted	Teacher	All Grades					1/30	
H-4	Deaf	Teacher	Preschool	1/6	1/12				
			Elementary	1/6	1/8			1/10	
			Secondary	1/6		1/9			
			All Grades		1/8				
		Aide	Preschool	1/6					
H-7	Emotionally Disturbed	Teacher	Elementary	1/40	1/8				
			Secondary	1/40			1/40		
		Aide	Elementary		1/10				
H-9	EMR	Teacher	Preschool	1/23					
			Elementary	1/20	1/15				
			Secondary	1/21	1/18				
			Ungraded *	1/8					
H-10	TMR	Teacher	All Grades	1/8					
H-12	Speech Handicaps	Speech Correctionist	Preschool					1/70	
			Elementary					1/70	
			Secondary					1/70	
* Includes multiple handicapped									

[illegible]

State Name: Oregon Special Education Personnel Estimated Requirements/Employment Comparison Data Period 1968-1969

Occupation		Degree Level	Certified	Education Level										Total	
				Preschool		Elementary		Secondary		Ungraded		Unspecified			
T-Teacher	A-Aide			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed
Th-Therapist	O-Other														
T/Blind		Uk	X	2	2	5	6				11		24		
		Total		2	2	6	5	7	6		11	11	27	24	
O/Preschool Counselor		Uk			1								1		
		Total		2	1								2	1	
T/Partially Sighted		Uk	X			14							14		
		Total				2	14				14		3	14	14
T/Deaf		Uk	X		9	42	32						83		
		Total		9	9	37	42	17	32		20	3	83	83	
A/Deaf		Uk			1								1		
		Total		7	1								7	1	
T/Emotionally Disturbed		Uk	X			19			6.5				25.5		
		Total				8	19	6	6.5				14	25.5	
A/Emotionally Disturbed		Uk				6							6		
		Total				5	6						5	6	
T/EMR and TMR						18			1				19		
		Uk	X		3	239			78		1		321		
		Total		29	3	214	257	67	79	278	1	36	625	340	
O/Speech Correctionist		Uk	X		3	125			3				131		
		Total		3	3	217	125	3	3				133	131	
T/Extreme Learning Problems		Uk	X			250							250		
		Total				257	250						257	250	

1/ Calculation incomplete due to missing data  
2/ Calculation cannot be made due to missing data  
3/ Employment data unavailable  
Uk-Unknown

Oregon



Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program				
		Elementary		Secondary		Residential	Special Schools	Day Special Class	Cooperative Special	Itinerant
		Pri.	Inter.	Jr. H.	Sr. H.					
H-1	Blind	7-9	10-12	13-15	16-13		X	X		
H-2	Partially Sighted	7-9	10-12	13-15						
H-3	Visually Handicapped									
H-4	Deaf									
H-5	Hard of Hearing									
H-6	Hearing Handicapped									
H-7	Emotionally									
H-8	Mentally Retarded									
H-9	EMR									
H-10	TMR									
H-11	MR (Custodial, Severe, Institutional)									
H-12	Speech Handicaps									
H-13	Speech and Hearing									
H-14	Special Learning Disabilities									
H-15	Brain Injured									
H-16	Physically Handicapped									
H-17	Homebound									

Pennsylvania

1/ If no entry is shown, category is not applicable to the state.



## State Name: Pennsylvania Enrollments In Special Education Data Period: 1968 - 1969

Pennsylvania

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List
			Residen- tial Class	Special Schools	Day Special	Coopera- tive Special	Itinerant	
H-1	Blind	Preschool		62				
		Elementary		309	258			
		Secondary		247	248			
H-2	Partially Sighted	Elementary					1124	
		Secondary					339	
H-4	Deaf	Preschool		111				
		Elementary		554	310			
		Secondary		443	118			
H-5	Hard of Hearing	Elementary					370	NOT AVAILABLE
		Secondary					598	
H-7	Emotionally Disturbed	Preschool		212				
		Elementary		1061	825			
		Secondary		848	841			
H-9	EMR	Elementary			19,324			
		Secondary			21,667			
H-10	TMR	Elementary			3,130			
		Secondary			1,656			
H-12	Speech Handicaps	Elementary					32,392	
		Secondary					923	
H-13	Speech and Hearing	Elementary					27,606	
		Secondary					241	
H-15	Brain Injured	Elementary			1,656			

[illegible]

[illegible]

State Name: Pennsylvania Special Education Personnel Estimated Requirements/Employment Comparison 1/ Data Period 1968-69

Occupation			Degree Level	Certified	Education Level										Total	
T=Teacher Th=Therapist	A=Aide O=Other	Preschool			Elementary		Secondary		Ungraded		Unspecified					
		Esti- mated			Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed			
T/Blind			None	X												19
			BA	X				12				7				68
			MA	X				42				26				17
			DOC	X				11				6				1
			Uk	X				1				0				3
			Total		3/	6-12	57-113	66	49-99	41					112-224	107
T/Partially Sighted			Unce- rtified				2				0					2
			None				10				4					14
			BA	X			33				13					46
			MA	X			8				4					12
			Total				44-56	53	13-17	21					57-73	74
			None				19				11					30
T/Deaf			BA	X			66				38					104
			MA	X			17				10					27
			Uk	X			3				1					4
			Total				38-62	2/ 105	15-23	2/ 60					53-85	2/ 165
			Unce- rtified				5				0					5
			None								4					71
T/Hard of Hearing			BA				233				15					248
			MA				59				4					63
			Uk				6				1					7
			Total													
			None													
			BA													

1/ Based upon enrollment data only (no waiting list data available)

2/ Calculation incomplete due to missing data (estimated requirements are not calculated by degree level)

3/ Employment data unavailable

Uk=Unknown

1/ Based upon enrollment data only (no waiting list data available)

2/ Calculation incomplete due to missing data (estimated requirements are not calculated by degree level)

3/ Employment data unavailable  
Uk-Unknown

Pennsylvania

State Name: Pennsylvania

Special Education Personnel Estimated Requirements/Employment Comparison 1/

Data Period 1968-69

Pennsylvania

Occupation	Degree Level	Certified	Education Level												Total
			Preschool		Elementary		Secondary		Ungraded		Unspecified				
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed			
T/Teacher Th=Therapist O=Other	Total				14-24 2/	370	24-40	24					38-64 2/	394	
T/Hard of Hearing (cont.) T/Socially and Emotionally Disturbed	Ungraded					6		1						7	
	None	X				40		24						64	
	BA	X				140		93						233	
	MA	X				36		24						60	
	Uk	X				0		6						6	
T/EMR	Total		4/		103-165 2/	222	4/	148					103-165 2/	370	
	Ungraded					18		20						38	
	None	X				253		226						479	
	BA	X				885		891						1776	
	MA	X				225		254						479	
T/TMR	Dr.	X				1		0						1	
	Uk	X				22		23						45	
	Total				2/	1404	866-1444	1414					866-1444	2818	
	Ungraded					8		5						13	
	None	X				47		13						60	
T/Speech Correction	BA	X				163		85						248	
	MA	X				41		22						63	
	Total				174-447	259	92-236	125					266-683	384	
	None					63		0						63	
	BA					220		6						226	
1/ Based upon enrollment only (no waiting list data available)															
2/ Calculation incomplete due to missing data (estimated requirements are not calculated by degree level)															
4/ Calculation cannot be made due to missing data															
Uk-Unknown															

Pennsylvania

State Name: Pennsylvania

Special Education Personnel Estimated Requirements/Employment Comparison<sup>1/</sup>

Data Period 1968-69

Pennsylvania

Occupation	Degree Level	Certificate	Education Level										Total
			Preschool		Elementary		Secondary		Ungraded		Unspecified		
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	
T=Teacher Th=Therapist O=Other	MA	X				56		4					60
	Uk	X				10		0					10
	Total			215-359	349	6-10	10					221-369	359
	None				45		0						45
T/Speech and Hearing	BA	X				158		4					162
	MA	X				40		0					40
	Uk	X				7		0					7
	Total			4/	250	4/	4					4/	254
T/Brain Injured	None	X				14							14
	BA	X				50							50
	MA	X				13							13
	Uk	X				3							3
T/Physically Handicapped	Total			165-331	80							165-331	80
	Un- filled				6		1						7
	None	X			38		19						57
	BA	X			133		66						199
T/Aphasic	MA	X				34		17					51
	Total				211		103					4/	314
	BA			1	1							1	1
	None				10		46						56
T/Educationally Retarded	BA				34		160						194

1/ Based upon enrollment data only (no waiting list data available)

4/ Calculation cannot be made due to missing data

Uk=Unknown

1/ Based upon enrollment data only (no waiting list data available)

4/ Calculation cannot be made due to missing data

Uk-Unknown

Pennsylvania

State Name: Pennsylvania

Data Period 1968-69

Pennsylvania

[illegible]

## State Name: Rhode Island      Overview of Special Education Programs      Data Period 1968 - 1969

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)					Education Program					
		Pre-school	Elementary		Secondary		Residential Class	Special Schools	Day Special Class	Resource Room	Itinerant	Special Class in Regular Sch.
			Pri.	Inter.	Jr. H.	Sr. H.						
H-1	Blind											
H-2	Partially Sighted											
H-3	Visually Handicapped	3-5 pvt	6-14		15-21			X	X	X	X	X
H-4	Deaf											
H-5	Hard of Hearing											
H-6	Hearing Handicapped	3-5	6-14		15-21		X	X	X	X	X	X
H-7	Emotionally Handicapped	3-5 pvt	6-14				X	X	X	X	X	
H-8	Mentally Retarded											
H-9	EMR	3-5	6-9	10-13	14-16	16-21	X	X	X	X	X	X
H-10	TMR	3-5	6-9	10-13	14-16	16-21	X	X		X	X	X
H-11	MR (Custodial, Severe, Institutional)	under 5	5-9	10-14	15-17	18-19	X					
H-12	Speech Handicaps	3-5 pvt	6-14		15-21					X		
H-13	Speech and Hearing											
H-14	Special Learning Disabilities											
H-15	Brain Injured 2/	-5 pvt	6-14					X		X	X	X
H-16	Physically Handicapped	3-5 pvt	6-14					X			X	X
H-17	Homebound 3/	3-5	6-14		15-21						X	
H-22	Severe Emotionally Handicapped	ungraded					X					

1/ If no entry is shown, category is not applicable to the state

2/ Includes Asphasic

3/ Includes Health Impaired

Rhode Island



State Name: Rhode Island

Enrollments In Special Education

Data Period 1968 -1969

Rhode Island

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List
			Residential Special Class	Special Schools	Special Class in Regular Room	Resource Room	Itinerant	
H-3	Visually Handicapped	Preschool			6			
		Elementary			15	7	9	
		Secondary			1		22	
H-6	Hearing Handicapped	Preschool		23	7		1	
		Elementary	5	61	10	15	33	
		Secondary		37		5	29	
		Unspecified				39	35	NOT AVAILABLE
H-7	Emotionally Disturbed	Preschool		28				
		Elementary			209	55		NOT AVAILABLE
H-9	EMR	Preschool	1		40			
		Elementary	18	125	969			
		Secondary	8		648			
		Ungraded			146			
H-10	TMR	Preschool	1	40				
		Elementary	2-8	27	161			
		Secondary	19	158	114			
		Ungraded		16	173			
H-11	Mentally Retarded (Institutionalized)	Preschool	1					
		Elementary	95					
		Secondary	105					
H-12	Speech Handicaps	Unspecified					4759	
H-15	Brain Injured	Preschool			3			

Data Period 1968 - 1969

## Enrollments In Special Education

**State Name:** Rhode Island

[illegible]

**\*Private School**

State Name: Rhode Island			Personnel/Pupil Contact Ratio		Data Period 1968 -1969						Rhode Island	
Handicap Category	Occupation	Education Level	Special Education Program Types						Resource Room	Itinerant		
			Resident Special Class	Special Schools	Special Class in Regular School	Special Class in Regular School	Special Class in Regular School	Special Class in Regular School				
3 Visually Handicapped	Teacher	Preschool				1/10	1/10	1/10	1/8			
		Elementary				1/10	1/10	1/10	1/8			
	Aide	Preschool				1/10	1/10	1/10				
	Consulting Specialist	Preschool							1/200			
		Elementary							1/200			
		Secondary							1/200			
6 Hearing Handicapped	Peripatologist	Elementary							1/25			
		Secondary							1/25			
	Teacher	Preschool	1/10	1/10	1/10			1/10	1/10			
		Elementary	1/10	1/10	1/10			1/15	1/8			
		Secondary	1/10	1/10	1/10			1/15	1/8			
	Speech and Hearing Therapist	Preschool	1/10	1/10	1/10			1/10	1/10			
7 Emotionally Disturbed		Elementary	1/10	1/10	1/10			1/15	1/8			
		Secondary	1/10	1/10	1/10			1/15	1/8			
	Teacher	Preschool				1/10						
		Elementary					1/10	1/10				
	Aide	Preschool				1/10						
	Teacher	Preschool	1/10	1/10	1/10			1/10				
9 EMR		Primary	1/10	1/10	1/10			1/10				
		Intermediate	1/14	1/14	1/14			1/14				

Data Period 1968 -1969

Personnel/Pupil Contact Ratio

State Name: Rhode Island

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types			
				Residential Special Class	Special Schools	Special Class in Regular School	Resource Room
H-10	TMR	Teacher	Preschool	1/10	1/10	1/10	
			Elementary *	1/12	1/12	1/12	
		Aide	Secondary	1/12	1/12	1/12	
			Preschool	1/10	1/10	1/10	
H-11	Mentally Retarded (Custodial, Severe, Institutionalized)	Teacher	Elementary	1/12	1/12	1/12	
			Secondary	1/12	1/12	1/12	
		Child Development Teacher	Preschool	1/10	1/10		
			Elementary		1/10		
		Aide	Preschool		1/10		
			Elementary		1/10		
		Speech Therapist	Secondary		1/10		
			Unspecified		1/40		
		Phys. Ed. Consultant	Unspecified		1/400		
			Preschool				1/70
H-12	Speech Handicaps	Speech & Hearing Therapist	Elementary				1/70
			Secondary				1/70
			Preschool			1/10	
H-15	Brain Injured	Teacher/Physically Handicapped	Elementary			1/10	
			Secondary			1/10	
			Preschool			1/10	
H-16	Physically Handicapped	Teacher	Preschool		1/10		

\* Ratio is based on teacher with aide

[illegible]

State Name: Rhode Island Special Education Personnel Estimated Requirements/Employment Comparison 1/ Data Period 1968-1969

Occupation	Degree Level	Certified	Education Level									
			Preschool		Elementary		Secondary		Ungraded		Unspecified	
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed
T/Visually Handicapped						1						1
	MA	X		1		2		3				6
	Total		1	1	3	3	2/	3			4 3/	7
A/Visually Handicapped				24								24
	Total		1 3/	24							1 3/	24
O/Consultant Visually Handicapped	MA	X									1	1
	Total								1	1	1	1
O/Peripatologist	MA	X									1	1
	Total								1	1	1	1
T/Hearing Handicapped	BA	X		1				1			11	13
	MA	X									9	9
	Total		2 3/	1	12 3/	4/	8 3/	1		2/	20	22 3/
	BA	X		3		11						14
T/Emotionally Disturbed	MA	X		1		26						27
	Total		3	4	26	37					29	41
	UK	X	8 3/	21	113 3/	54	72 3/	142			193 3/	217
Th/Speech and Hearing	BA	X		2		26						28
	MA	X		2		27						29
	UK	X									46	46
	Total		2 3/	4	12 3/	53	8 3/	4/		68	90 3/	103
T/Physically Handicapped	UK		9 3/	4/	43 3/	4/	2/				52 3/	4/

1/ Based upon enrollment data only (no waiting list data available) Uk-Unknown

2/ Calculations cannot be made due to missing data

3/ Calculations incomplete due to missing data

4/ Employment data unavailable

Special Education Personnel Estimated Requirements/Employment Comparison<sup>1/</sup>[illegible]

South Carolina

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)					Education Program				
		Preschool	Primary	Inter- mediate	Jr. High	Sr. High	Residential	Day School	Self- Contained	Resource Room	Itinerant
H-1	Blind	1-5	6-8	9-12	13-15	16-18	X	X		X	
H-2	Partially Sighted	1-5	6-8	9-12	13-15	16-18			X		
H-3	Visually Handicapped										
H-4	Deaf	1-5	6-8	9-12	13-15	16-18	X	X	X		
H-5	Hard of Hearing	1-5	6-8	9-12	13-15	16-18			X		
H-6	Hearing Handicapped										
H-7	Emotionally	1-5	6-8	9-12	13-15	16-18	X	X	X		
H-8	Mentally Retarded										
H-9	EMR	1-5	6-8	9-12	13-15	16-18					
H-10	TMR	1-5	6-8	9-12	13-15	16-18		X	X		
H-11	MR (Custodial, Severe, Institutional)							X	X		
H-12	Speech Handicaps	1-5	6-8	9-12	13-15	16-18					X
H-13	Speech and Hearing										
H-14	Special Learning Disabilities	1-5	6-8	9-12	13-15	16-18	X		X		
H-15	Brain Injured										
H-16	Physically Handicapped 2/	1-5	6-8	9-12	13-15	16-18					
H-17	Homebound								X		

1/ If no entry is shown, category is not applicable to the state  
2/ Called Orthopedically Handicapped

<sup>1/</sup> If no entry is shown, category is not applicable to the state<sup>2/</sup> Called Orthopedically Handicapped



State Name: South Carolina		Enrollments In Special Education			Data Period 1968-69		
Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type				Waiting List
			Residential	Day Special School	Self-Contained Class	Resource Room	Itinerant
H-1	Blind	Elementary	62	3		3	
		Secondary	105	4		4	
H-2	Partially Sighted	Elementary			7		
H-4	Deaf	Preschool		40	30		
		Elementary	193				
		Secondary	117				
H-5	Hard of Hearing	Elementary			110		
H-7	Emotionally Handicapped	Elementary	30	10	300		Not Available
		Secondary	10		40		
H-9	EMR	Preschool		30			
		Elementary			8925		
		Secondary			2480		
H-10	TMR	Preschool		50			
		Elementary			500		
		Secondary			140		
H-12	Speech Handicaps	Elementary					8040
		Secondary					5360
H-14	Special Learning Disabilities	Elementary	15		102		
		Secondary	2		68		
H-16	Orthopedically Handicapped	Elementary			105		
		Secondary			100		

South Carolina

297

[illegible]

State Name: South Carolina										Special Education Personnel Estimated Requirements/Employment Comparison <sup>1/</sup>										Data Period 1968-69	
Occupation		Degree Level	Preschool	Education Level						Unspecified	Total										
T-Teacher	A-Aide Th-Therapist O-Other			Esti- mated	Employed	Elementary	Secondary	Ungraded	Unspecified												
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed							
T/Visually Handicapped	BA	X				14		9						23							
	MA	X				2								2							
	Total				8	16	11	9					19	25							
T/Hearing Handicapped	BA	X		5		34		24						63							
	MA	X		1										1							
	Total		9	6	38	34	14	24					61	64							
T/Emotionally Handicapped	Uncer			24		4								28							
	BA	X				18		12						30							
	Total		3/	24	42	22	6	12					48 2/	58							
T/EMR	Uncer					120		80						200							
	BA	X				440		110						550							
	MA	X				40		27						67							
T/TMR	Total				3/	600		217					3/	817							
	Uncer					40		10						50							
	BA	X				54		10						64							
T/Speech Handicapped	Total		6	4/	62	94	17	20					85	114							
	Uncer					24		10						34							
	BA	X				75		15						90							
	MA	X				8		2						10							
	Total				107	87	71	27					178	114							
	<sup>1/</sup> Based upon enrollment data only (no waiting list data available) <sup>2/</sup> Calculations incomplete due to missing data <sup>3/</sup> Calculations cannot be made due to missing data <sup>4/</sup> Employment data unavailable																				

1/ Based upon enrollment data only (no waiting list data available)  
3/ Calculations incomplete due to missing data

Age Breakdowns are approximations  
1/ If no entry is shown, category is not applicable to the state

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program			
		Elementary	Secondary	Ungraded		Residential School	Special School	Day Special Class	Itinerant
H-1	Blind	6-13	14-17			X			X
H-2	Partially Sighted	6-13	14-17			X			
H-3	Visually Handicapped								
H-4	Deaf	6-13	14-17			X			X
H-5	Hard of Hearing	6-13	14-17			X			
H-6	Hearing Handicapped								
H-7	Emotionally	7-13	14-21	12-18		X		X	X
H-8	Mentally Retarded								
H-9	EMR	7-13	14-21					X	X
H-10	TMR	7-13	14-21	5-21		X	X	X	
H-11	MR (Custodial, Severe, Institutional)								
H-12	Speech Handicaps			7-21					X
H-13	Speech and Hearing								
H-14	Special Learning Disabilities	7-13				X			
H-15	Brain Injured								
H-16	Physically Handicapped			7-21		X			X
H-17	Homebound								

Age Breakdowns are approximations  
1/ If no entry is shown, category is not applicable to the state

State Name: South Dakota

Enrollments In Special Education

Data Period 1968-1969

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type				Waiting* List
			Residen- tial School	Special School	Day Special Class	Itinerant	
H-1	Blind	Elementary	7			0	14
		Secondary	3			1	
H-2	Partially Sighted	Elementary	27				14
		Secondary	13				
H-4	Deaf	Elementary	47			1	
		Secondary	19			0	
H-5	Hard of Hearing	Elementary	46				28
		Secondary	19				28
H-7	Emotionally Disturbed	Elementary			8		112
		Secondary					168
		Ungraded	45			14	
H-9	EMR	Elementary			580		210
		Secondary			290		252
		Ungraded				23	
H-10	TMR	Elementary	6	34	120		84
		Secondary	66	11	51		14
		Ungraded	220				
H-12	Speech Handicaps	Ungraded				1800	210
H-14	Special Learning Disabilities	Elementary	34				280
		Secondary	0				280
H-16	Physically Handicapped	Elementary	100				14
		Secondary	31				28
		Ungraded				82	

\* Based on sample — rough estimates — no hard data

State Name: South Dakota Personnel/Pupil Contact Ratio Data Period 1968- 1969

South Dakota

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types			
				Residen- tial School	Special School	Day Special School	Itinerant
H-1	Blind	Teacher	Secondary				1/5 day
H-3	Visually Handicapped	Teacher	All Grades	None			
H-4	Deaf	Teacher	Elementary				1/5 day
H-6	Hearing Handicapped	Teacher	All Grades	None			
H-7	Emotionally Disturbed	Teacher	Elementary			1/8	
			All Grades	None			1/5 day
H-9	EMR	Teacher	Elementary			1/5-12 <sup>1</sup> / <sub>2</sub>	1/5 day
			Secondary			1/5-12 <sup>1</sup> / <sub>2</sub>	1/5 day
		Aide	Elementary			1/12-20	
			Secondary			1/12-20 <sup>2</sup> / <sub>2</sub>	
H-10	TMR	Teacher	Elementary	1/5-10	1/5-10	1/5-10 <sup>2</sup> / <sub>2</sub>	
			Secondary	1/5-10	1/5-10	1/5-10 <sup>2</sup> / <sub>2</sub>	
		Aide	Elementary	1/10-15	1/10-15	1/10-15	
			Secondary	1/10-15	1/10-15	1/10-1	
		Teacher	All Grades	None			
H-12	Speech Handicaps	Therapist	All Grades				1/100 caseload
H-14	Special Learning Disabilities	Teacher	Elementary	1/5-10 <sup>3</sup> / <sub>2</sub>			
		Aide	Elementary	1/10-20			
H-16	Physically Handicapped	Teacher	Elementary	1/5-12 <sup>1</sup> / <sub>2</sub>		Probably	1/5 day
			Secondary	1/5-12 <sup>1</sup> / <sub>2</sub>		Ungraded	1/5 day
		Aide	Elementary	1/12-20			
			Secondary	1/12-20			
1/ 1/12-20 with aide		2/ 1/10-15 with aide	3/ 1/10-20 with aide				

## South Dakota



State Name: South Dakota

Special Education Personnel Estimated Requirements/Employment Comparison 1/

Data Period 1968-69

Occupation		Degree Level	Certified	Education Level						Unspecified	Total	South Dakota	
T=Teacher Th=Therapist T/Visually Handicapped	A=Aide O=Other			Preschool	Elementary	Secondary	Ungraded	Estimated	Employed			Estimated	Employed
		None											2
		BA					1						8
		MA							2				2
		Total				2/	1	2/	11			2/	12
	T/Hearing Handicapped	None	X						7				7
		BA	X		1				12				13
		MA	X						1				1
		Total		2/	1			2/	20			2/	21
	T/Emotionally Disturbed	None	X						1				1
		BA	X		1				4				5
		Total		1	1			3/	5			3/	6
	T/EMR	Uncertified			12		5						17
		None	X		14		2						16
		BA	X		32		12						44
		MA	X		2		4						6
		Total		48-116	60	24-58	23	4	4/			76-178	83
	T/TMR	Uncertified			4		1						5
		None	X		6		1		2				9
		BA	X		9		2		8				19
		Total		14-28	19	12-25	4	2/	10			26-53/	33

1/ Based upon enrollment data only (no waiting list data available)

2/ Calculations cannot be made due to missing data

3/ Calculations incomplete due to missing data

4/ Employment data unavailable

1/ Based upon enrollment data only (no waiting list data available)

2/ Calculations cannot be made due to missing data

3/ Calculations incomplete due to missing data

4/ Employment data unavailable

State Name: South Dakota Special Education Personnel Estimated Requirements/Employment Comparison 1/ Data Period 1968 -69

Occupation	Degree Level	Certified	Education Level									
			Preschool		Elementary		Secondary		Ungraded		Unspecified	
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed
T=Teacher Th=Therapist Th/Speech	A=Alde O=Other											
	BA	X							16			16
	MA	X							1			1
T/Special Learning Disabilities	Total								18			18
	BA	X				2						2
	MA	X				1						1
A/Special Learning Disabilities	Total					3						3
	Uncer- tified					2						2
	BA	X				8			3			11
T/Physically Handicapped	Total					8			16			27-42
	BA	X				8	3-6		23			23
	Uk								14			14
O/EMR Tutors	Total								82			82
	Uk								26			26
	BA	X							3			3
Th/Physical	Total								1			1
	BA	X							3			3
	Total								3			3
Th/Occupational	BA	X							1			1
	Total								3			3
	BA	X							3			3
O/EMR Vocational Adjustment Coordinator	Total								1			1
	BA					1						1
	MA					2			4			2
O/Psychologist	Total								2			2
	MA	X							4			4
	MA	X							62			62

1/ Based upon enrollment data only (no waiting list data available)

2/ Calculations cannot be made due to missing data

3/ Calculations incomplete due to missing data

4/ Employment data unavailable

State Name: Tennessee

Overview of Special Education Programs

Data Period 1968-69

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)			Education Program		
		Preschool	Ungraded		Day Special Class	Itinerant	
H-1	Blind		5-21		X		
H-2	Partially Sighted		5-21		X		
H-3	Visually Handicapped						
H-4	Deaf	3-6	5-21		X		
H-5	Hard of Hearing		5-21		X		
H-6	Hearing Handicapped						
H-7	Emotionally		5-21		X		
H-8	Mentally Retarded						
H-9	EMR		5-21		X		
H-10	TMR		5-21		X		
H-11	MR (Custodial, Severe, Institutional)						
H-12	Speech Handicaps		5-21		X	X	
H-13	Speech and Hearing						
H-14	Special Learning Disabilities <sup>2/</sup>		5-21		X		
H-15	Brain Injured						
H-16	Physically Handicapped						
H-17	Homebound						
H-18	Multiple Handicapped				X		

Tennessee

<sup>1/</sup> If no entry is shown, category is not applicable to the state<sup>2/</sup> Perceptually Handicapped

## Tennessee

Data Period 1968-69

### Personnel/Pupil Contact Ratio

**State Name: Tennessee**

Tennessee

[illegible]

State Name: Tennessee		Special Education Personnel Estimated Requirements/Employment: Comparison 1/										Data Period 1968-69	
Occupation	Degree Level	Certified	Education Level										Total
			Preschool	Elementary	Secondary	Ungraded	Unspecified	Estimated	Employed	Estimated	Employed	Estimated	Employed
T=Teacher Th=Therapist O=Other	Uncer								11				11
	BA	X							3				3
	MA	X							8				8
	Total					27-33			22			27-33	22
T/Hearing Handicapped	Uncer								11				11
	BA	X							7				7
	MA	X							4				4
	Total					30-38			22			30-38	22
T/Emotionally Disturbed T/EMR	UK					18			18			18	18
	Uncer								400				400
	UK	X							350				350
	Total					1134			750			1134	750
T/TMR Th/Speech and Hearing	UK					230			130			230	130
	Uncer								3				3
	UK	X							177				177
	Total					230			180			230	180
T/Special Learning Disabilities T/Multiple Handicapped	UK					69			63			69	63
	Uncer								19				19
	UK	X							58				58
	Total					114			77			114	77
1/ Based upon enrollment data only (no waiting list data available) UK - Unknown													

Tennessee

Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program					
		Preschool	Elementary	Secondary	Unspecified	Residential	Special School	Day Special Class	Cooperative Class	Resource Room	Itinerant
H-1	Blind		6-12	13-21		X		X	X	X	X
H-2	Partially Sighted		6-12	13-21				X	X	X	X
H-3	Visually Handicapped										
H-4	Deaf	3-5	6-12	13-21		X	X	X			
H-5	Hard of Hearing										
H-6	Hearing Handicapped										
H-7	Emotionally Disturbed		6-12	13-21		X		X	X		
H-8	Mentally Retarded										
H-9	EMR				6-21	X		X			
H-10	TMR				6-21	X		X			
H-11	MR (Custodial, Severe, Institutional)										
H-12	Speech Handicaps										
H-13	Speech and Hearing		6-12	13-21							X
H-14	Special Learning Disabilities										
H-15	Brain Injured		6-12	13-21				X	X	X	
H-16	Physically Handicapped		6-12	13-21		X		X			X
H-17	Homebound				6-21						X
H-18	Hospital				6-21						X
H-19	Combination				6-21			X			

Texas

1/ If no entry is shown, category is not applicable to the state

[illegible]



**Texas**



Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)					Education Program						
		Preschool	Primary	Inter- mediate	Jr. High	Secondary High	Residential Special Class	Special Schools	Day Special Class	Cooperative Class	Itinerant	Special Class in Regular School	
H-1	Blind		6-8	9-11	12-14	15-22	X				X		
H-2	Partially Sighted		6-8	9-11	12-14	15-22					X		
H-3	Visually Handicapped						X					X	
H-4	Deaf	3-5	6-8	9-11	12-14	15-22							
H-5	Hard of Hearing		6-8	9-11	12-14	15-22					X		
H-6	Hearing Handicapped												
H-7	Emotionally		6-8	9-11	12-14	15-22	X		X				
H-8	Mentally Retarded												
H-9	EMR		6-8	9-11	12-14	15-22			X				
H-10	TMR		6-8	9-11	12-14	15-22						X	
H-11	MR (Custodial, Severe, Institutional)		6-8	9-11	12-14	15-22		X					
H-12	Speech Handicaps												
H-13	Speech and Hearing		6-8	9-11	12-14	15-22					X		
H-14	Special Learning Disabilities <sup>2/</sup>		6-8	9-11	12-14	15-22				X			
H-15	Brain Injured		6-8	9-11	12-14	15-22							
H-16	Physically Handicapped <sup>3/</sup>		6-8	9-11	12-14	15-22					X		
H-17	Homebound		6-8	9-11	12-14	15-22					X		

<sup>1/</sup> If no entry is shown, category is not applicable to the state

<sup>2/</sup> Remedial Program

<sup>3/</sup> Motor Handicaps

Utah

<sup>1/</sup> If no entry is shown, category is not applicable to the state<sup>2/</sup> Remedial Program<sup>3/</sup> Motor Handicaps

State Name: Utah  
Enrollments In Special Education  
Data Period 1968-69

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Special Class in Regular School
			Residen- tial Special Class	Special Schools	Day Special Class	Coopera- tive Special Class	Itinerant	
H-1	Blind	Preschool	21					
		Elementary	38				13	
		Secondary	27				16	
		Ungraded	8					
H-2	Partially Sighted	Elementary					41	
		Secondary					27	
H-4	Deaf	Preschool	18					44
		Elementary	69					58
		Secondary	70					12
H-5	Hard of Hearing	Elementary					176	
		Secondary					63	
H-7	Emotionally Disturbed	Elementary	11		726			
		Secondary	43		604			
H-9	EMR	Elementary			1505			
		Secondary			1433			
H-10	TMR	Elementary						165
		Secondary						118
H-11	MR (Institutionalized)	Preschool		518				
H-13	Speech and Hearing	Elementary					7767	
		Secondary					703	
H-14	Special Learning Disabilities	Elementary				6547		
		Secondary				2734		
No waiting list data available								

Utah

Utah

[illegible]

State Name: Utah Personnel/Pupil Contact Ratio Data Period 1968-69

Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types					Special Classes in Regular School
				Residential Special Class	Special Schools	Day Special Class	Cooperative Special Class	Itinerant	
H-1	Blind	Teacher	Elementary	1/8			1/15		
			Secondary	1/8			1/15		
H-2	Partially Sighted	Teacher	Elementary				1/15		
			Secondary				1/15		
H-4	Deaf	Teacher	Elementary		1/8				1/8
			Secondary		1/8				1/8
H-5	Hard of Hearing	Teacher	Elementary					1/15	
			Secondary					1/15	
H-7	Emotionally Handicapped	Teacher	Elementary	1/6		1/10			
			Secondary			1/10			
H-9	EMR	Teacher	Elementary			1/15			
			Secondary			1/15			
H-10	TMR	Teacher	Elementary						1/12
			Secondary						1/12
H-11	Severe Mentally Retarded	Teacher	Ungraded		1/20 1/				
	Aides		Ungraded		1/7 2/				
H-13	Speech and Hearing	Correctionist	Elementary					1/65	
			Secondary					1/65	
H-14	Special Learn. Disability	Remedial Teacher	All Grades				1/24		
H-16	Physically Handicapped	Teacher	Elementary						1/12
			Secondary						1/12
H-17	Homebound	Teacher	All Grades					1/10	
	1/ With 3 aides								
	2/ With teachers								

Utah

State Name: Utah

Special Education Personnel Estimated Requirements/Employment Comparison

1/

Data Period 1968-69

Occupation

T-Teacher

A-Aide

Th-Therapist

O-Other

Degree Level

BA

MA

Total

Uncer.

BA

MA

Total

BA

MA

Total

None

BA

MA

Total

None

BA

MA

Total

None

BA

MA

Total

DR

Total

Preschool

Esti-  
mated

Employed

Elementary

Esti-  
mated

Employed

Secondary

Esti-  
mated

Employed

Ungraded

Esti-  
mated

Employed

Unspecified

Esti-  
mated

Employed

Total

Esti-  
mated

Employed

T/Visually Handicapped

T/Deaf

T/Hard of Hearing

T/Emotionally Disturbed

T/EMR

Utah

1/ Based upon enrollment data only (no waiting list data available)

2/ Calculations cannot be made due to missing data

3/ Calculations incomplete due to missing data

4/ Employment data not available

1/ Based upon enrollment data only (no waiting list data available)

2/ Calculations cannot be made due to missing data

3/ Calculations incomplete due to missing data

4/ Employment data not available

State Name: Utah Special Education Personnel Estimated Requirements/Employment Comparison<sup>1/</sup> Data Period 1968-69

Occupation	Degree Level	Preschool	Education Level						Unspecified	Total
			Preschool	Elementary	Secondary	Ungraded	Unspecified	Total		
T-Teacher	A-Aide	O-Other	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed
T/TMR	BA	X		9		3	4			16
	MA	X		2				1		3
Total			13	11	10	3	4	1	23	19
T/Severe MR (with 3 aides)	UK						4/		25	4/
C/Speech and Hearing	BA	X		12		1	1	65		79
Correctionist	MA	X		3				18		21
	DR	X						2		2
Total			119	15	10	1	2/	85	129	102
T/Remedial Teachers for	None			3		2	2			7
Learning Disabilities	BA		3	104	83		55	1		241
	MA			23	17		19	2		61
Total		2/	3	272	130	102	2/	76	3	385
T/Physically Handicapped	BA			5		2				7
	MA						1			1
Total			8	5	4	2	2/	1	12	8
T/Home and Hospital	BA			9		14	1	18		42
	MA							3		3
Total			27	9	2/	14	2/	21	27	45
A/Blind	None		2/	1			2/	1	3/	2
<sup>1/</sup> Based upon enrollment data only (no waiting list data available) <sup>2/</sup> Calculations cannot be made due to missing data <sup>3/</sup> Calculations incomplete due to missing data <sup>4/</sup> Employment data unavailable										

Utah

UK - Unknown



Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program				
		Preschool	Elementary	Secondary	Ungraded	Residential	Special	Day Special	Resource	Itinerant
H-1	Blind	4-5	6-12							X
H-2	Partially Sighted	4-5	6-12	13-20						X
H-3	Visually Handicapped									
H-4	Deaf	3-5	6-12	13-20		X				
H-5	Hard of Hearing	3-5				X				
H-6	Hearing Handicapped									
H-7	Emotionally Disturbed		6-12	13-20	5-21	X		X		
H-8	Mentally Retarded									
H-9	EMR		6-12	13-20		X		X		
H-10	TMR				5-21			X		
H-11	MR (Custodial, Severe, Institutional)									
H-12	Speech Handicaps	4-5	6-12	13-20						X
H-13	Speech and Hearing									
H-14	Special Learning Disabilities	4-5	6-12	13-20		X	X	X	X	X
H-15	Brain Injured									
H-16	Physically Handicapped	4-5	6-12	13-20		X				X
H-17	Homebound									
H-18	Blind/Deaf Mentally Retarded				5-21	X		X		
1/ If no entry is shown, category is not applicable to state										

Vermont

State Name: Vermont

Enrollments In Special Education

Date Period 1968- 69

Vermont

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type					Waiting List
			Residential	Special	Day Special	Resource	Itinerant	
H-1	Blind	Elementary					9	
H-2	Partially Sighted	Preschool					2	
		Elementary					81	
		Secondary					45	
H-4	Deaf	Preschool	17					
		Elementary	37					
		Secondary	26					
H-5	Hard of Hearing	Preschool	4					
H-7	Emotionally Disturbed	Elementary	32		13			
		Secondary	146					
		Ungraded	30					
H-9	EMR	Elementary	50		449			32 *
		Secondary	34		354			
H-10	TMR	Elementary	42		131			16 *
		Secondary			11			
H-11	MR(Custodial, Severe, Institution)	Elementary						48 *
H-12	Speech Handicaps	Elementary					598	
H-14	Special Learning Disabilities	Preschool	20	38				
		Elementary	29	10	69	84	172	
H-16	Physically Handicapped	Preschool	12					
		Elementary	9				62	
		Secondary	2					

\* Provided by Brandon School only (other waiting list data is not tabulated in Vermont)

Date Period 1968-69

Vermont

[illegible]

State Name: Vermont			Personnel/Pupil Contact Ratio		Data Period 1968 -69							Vermont	
Handicap Code	Handicap Category	Occupation	Education Level	Special Education Program Types					Resource	Itinerant			
H-1	Blind	Tutor	Elementary								1/1		
H-2	Partially Sighted	Counselor	Elementary								1/10		
			Secondary								1/10		
H-4	Deaf	Teacher/Academic	Preschool	1/5									
			Elementary	1/5									
			Secondary	1/5									
		Teacher/Special	Secondary	1/10									
			Ungraded	1/10									
H-5	Hard of Hearing	Teacher	Preschool	1/8									
H-7	Emotionally Disturbed	Teacher	Elementary	1/7					1/8				
			Secondary	1/8									
			All Grades	1/6									
		Educational Therapist	Ungraded	1/6									
		Aide	Ungraded	1/6									
H-8	Mentally Retarded	Teacher	All Grades	1/10 estimate									
		Aide	All Grades	*									
H-9	EMR	Teacher	Elementary	1/15					1/15				
			Secondary						1/15				
		Aide	Elementary						1/15				
H-10	TMR	Teacher	Elementary						1/10				
			Secondary						1/10				
		Aide	Elementary						1/12				
* Works with blind retarded only													



State Name: Vermont		Special Education Personnel Estimated Requirements/Employment Comparison <sup>1/</sup>														Data Period 1968-69		Vermont	
Occupation		Degree Level		Preschool		Elementary		Secondary		Ungraded		Unspecified		Total					
T=Teacher Th=Therapist O=Other				Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed		
O/ Tutor Blind	BA	Reg					9									9	9		
	Total						9									9	9		
O/Counselor Partially Sighted	MA	X					5		7							12	12		
	Total					8	5	4	7							12	12		
T/Academic/Deaf	None	X					1		1							2	2		
	BA	X					5		3							8	8		
MA	X						3		2							5	5		
	Total					7	9	5	6						12	15	15		
T/Special/Deaf	None	X							4			1				5	5		
	BA	X							1		1					2	2		
Total								26	5	2	2				26	7	7		
	BA	X					14		4							18	18		
T/Emotionally Disturbed	Total			7	14	18	4	4	5	3				25	2	18	18		
	BA	X								4						4	4		
T/Educational Therapy	Total									5	4			5	4	5	4		
	None	X									1					1	1		
T/Emotionally Disturbed	BA	X					51		6							57	57		
	MA	X					4		4							8	8		
Total				32	56	24	10							56	2	66	66		
	None			29	13									29	13	29	13		

<sup>1/</sup> Based upon enrollment data only (no waiting list data available)

<sup>2/</sup> Calculation incomplete due to missing data

<sup>3/</sup> Employment data not available

<sup>1/</sup> Based upon enrollment data only (no waiting list data available)

<sup>2/</sup> Calculation incomplete due to missing data

<sup>3/</sup> Employment data not available

State Name: Vermont Special Education Personnel Estimated Requirements/Employment Comparison 1/ Data Period 1968-69

Occupation	Degree Level	Certificate	Education Level										Total		
			Preschool		Elementary		Secondary		Ungraded		Unspecified				
			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed			
T=Teacher Th=Therapist O=Other															
T/TMR	BA	X				13		1							14
	Total				13 2/	13	1	1						14 2/	14
	None	X				11	12	1	1					12	13
A/TMR	MA	X				2									2
	Total				7	2								7	2
	BA	X				8									8
T/Communication Skills	Total				6	8								6	8
	BA	X		7		15									22
	MA	X				5									5
T/Special Learning Disabilities	Total		7	7	30	20								37	27
	None	X			7	2								7	2
	BA	X		2		14		1							17
T/Physically Handicapped	Total		1	2	63	14	1	1						65	17
	MA	X						1							1
	Total							1	1					1	1
T/Blind MR	BA	X							1						1
	Total														
	BA	X													
T/Deaf MR	Total							1	1					1	1
	BA	X													
	Total														
T/Mentally Retarded	BA	X											10		10
	Total											4/	10	4/	10
	None												1		1
A/Mentally Retarded	Total											4/	1	4/	1
	1/ Based upon enrollment data only (no waiting list data available)														
	2/ Calculation incomplete due to missing data														
4/ Calculations cannot be made due to missing data															

Vermont

1/ Based upon enrollment data only (no waiting list data available)

2/ Calculation incomplete due to missing data

4/ Calculations cannot be made due to missing data

State Name: Virginia

Overview of Special Education Programs

Data Period 1968-69

Virginia

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)					Education Program					
		Elementary		Secondary		Unspecified	Residential Special Class	Day Special Class	Resource Room	Itinerant	Hospital: Rapid Turnover	Consulta- tion Services
		Primary	Inter- mediate	Advanced (Jr. High)	Sr. High							
H-1	Blind											
H-2	Partially Sighted											
H-3	Visually Impaired	6-12		13-18			X			X		X
H-4	Deaf											
H-5	Hard of Hearing											
H-6	Hearing Impaired	6-12		13-18			X	X		X		
H-7	Emotionally Disturbed	6-12		13-18			X	X	X			
H-8	Mentally Retarded											
H-9	EMR	7-9	10-12	13-15	16-18		X	X				
H-10	TMR	5-8	9-13	14-18			X	X				
H-11	MR (Custodial, Severe, Institutional)											
H-12	Speech Handicaps					6-18				X		
H-13	Speech and Hearing											
H-14	Special Learning Disabilities <sup>2/</sup>	6-12		13-18				X				
H-15	Brain Injured											
H-16	Physically Handicapped <sup>3/</sup>	6-12		13-18			X	X		X	X	
H-17	Homebound											

1/ If no entry is shown, category is not applicable to the state

2/ Called Neurologically Impaired

3/ Includes TB Hospitals

<sup>1/</sup> If no entry is shown, category is not applicable to the state<sup>2/</sup> Called Neurologically Impaired<sup>3/</sup> Includes TB Hospitals



[illegible]



State Name: Virginia		Special Education Personnel Estimated Requirements/Employment Comparison 1/										Data Period 1968 -69			
Occupation		Degree Level	Fitted O	Education Level								Total			
				Preschool		Elementary		Secondary		Ungraded				Unspecified	
T-Teacher	A-Aide			Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed	Esti- mated	Employed
Th-Therapist	O-Other														
T/Visually		RA	X										3		3
		MA	X										8		8
		Uk	X										58		58
		Total									64	69	64	69	69
T/Children with Hearing Disorders		Uncer										8			8
		Uk	X									117			117
		Total								129	125	129	125	125	125
		Uk									18	2/	18	2/	2/
T/Hearing Impaired		Uncer										31			31
		Uk	X									41			41
		Total								110	72	110	72	72	72
		Uk									62	2/	62	2/	2/
T/Emotionally Disturbed		Uncer										723			723
		Uk	X									248			248
		Total								972	971	972	971	971	971
		Uk									158	72	158	72	72
T/Attendant - TMR		Uncer										26			26
		Uk	X									152			152
		Total								179	178	179	178	178	178
		Uncer										14			14
T/Neurologically Handicapped		Uk										9			9

Virginia

Based upon enrollment data only (no waiting list data available)

Employment data unavailable

1/ Based upon enrollment data only (no waiting list data available)

2/ Employment data unavailable

State Name: Virginia

[illegible]

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)				Education Program			
		Preschool	Elementary	J. High	Secondary High				
H-1	Blind	3-5	6-12	13-15	16-21				
H-2	Partially Sighted	3-5	6-12	13-15	16-21				
H-3	Visually Handicapped		6-12	13-15	16-21				
H-4	Deaf	3-5	6-12	13-15	16-21				
H-5	Hard of Hearing	3-5	6-12	13-15	16-21				
H-6	Hearing Handicapped								
H-7	Emotionally	3-5	6-12	13-15	16-21				
H-8	Mentally Retarded								
H-9	EMR	3-5	6-21	13-15	16-21				
H-10	TMR	3-5	6-21	13-15	16-21				
H-11	MR(Custodial, Severe, Institutional)								
H-12	Speech Handicaps								
H-13	Speech and Hearing	3-5	6-12	13-15	16-21				
H-14	Special Learning Disabilities <sup>2/</sup>								
H-15	Brain Injured <sup>3/</sup>	3-5	6-12	13-15	16-21				
H-16	Physically Handicapped <sup>4/</sup>	3-5	6-12	13-15	16-21				
H-17	Homebound								
H-18	Multiple Handicapped	3-5	6-12						

<sup>1/</sup> If no entry is shown, category is not applicable to the state<sup>2/</sup> Includes Language Disabilities<sup>3/</sup> Includes Neurologically Impaired<sup>4/</sup> Called Orthopedically Handicapped

Washington

[illegible]

State Name: Washington		Enrollments In Special Education			Data Period 1969-70			Washington		
Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type				Waiting List			
			All Programs							
H-1	Blind	Preschool	20				3			
		Elementary	56							
		Secondary	45				4			
H-2	Partially Sighted	Preschool	2							
		Elementary	59				6			
		Secondary	38				12			
H-4	Deaf	Preschool	85				27			
		Elementary	159				4			
		Secondary	61							
H-5	Hard of Hearing	Preschool	25				16			
		Elementary	185				46			
		Secondary	53				43			
H-9	EMR	Preschool	96				42			
		Elementary	5216				451			
		Secondary	6398				344			
H-10	TMR	Preschool	27				45			
		Elementary	1003				112			
		Secondary	669				57			
H-7	Emotionally Disturbed	Preschool	18				7			
		Elementary	1283				522			
		Secondary	2114				410			

**State Name:** Washington

[illegible]



State Name: Washington

---

Special Education Personnel Estimated Requirements/Employment Comparison<sup>1/</sup>

---

Data Period 1969-70

[illegible]

State Name: West Virginia Overview of Special Education Programs

Data Period 1969-70

West Virginia

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)				Education Program			
		Unspecified				Residential	Special Class	Itinerant	No Program Breakdown
H-1	Blind								
H-2	Partially Sighted								
H-3	Visually Handicapped	2/							X
H-4	Deaf								
H-5	Hard of Hearing								
H-6	Hearing Handicapped	2/							
H-7	Emotionally								
H-8	Mentally Retarded								
H-9	EMR	2/							X
H-10	TMR								X
H-11	MR (Custodial, Severe, Institutional)	2/							
H-12	Speech Handicaps								
H-13	Speech and Hearing	2/							X
H-14	Special Learning Disabilities	2/							
H-15	Brail. Injured								
H-16	Physically Handicapped	2/					X		
H-17	Homebound	2/						X	

<sup>1/</sup> If no entry is shown, category is not applicable to the state<sup>2/</sup> Permissive legislation 2-3 years, mandatory legislation 6-21 years

[illegible]

[illegible]

[illegible]

Handicap Code	Handicap Category <sup>1/</sup>	Education Level (Age Ranges)						Education Program				
		Preschool	Primary	Intermediate	Jr. High	Sr. High	Residential	Special Schools	Day Special Class	Itinerant	No Program Breakdown	
H-1	Blind	1-6	5-9	10-12	13-15	16-20		X				
H-2	Partially Sighted	1-6	5-9	10-12	13-15	16-20			X	X		
H-3	Visually Handicapped											
H-4	Deaf	1-6	5-9	10-12	13-15	16-20		X	X			
H-5	Hard of Hearing	1-6	5-9	10-12	13-15	16-20				X		
H-6	Hearing Handicapped											
H-7	Emotionally	1-6	5-9	10-12	13-15	16-20		X		X		
H-8	Mentally Retarded											
H-9	EMR	1-6	5-9	10-12	13-15	16-20	X	X			X	
H-10	TMR	1-6	5-9	10-12	13-15	16-20	X	X			X	
H-11	MR (Custodial, Severe, Institutional)	1-6	5-9	10-12	13-15	16-20	X	X				
H-12	Speech Handicaps	1-6	5-9	10-12	13-15	16-20				X		
H-13	Speech and Hearing											
H-14	Special Learning Disabilities	1-6	5-9	10-12	13-15	16-20						
H-15	Brain Injured											
H-16	Physically Handicapped <sup>2/</sup>	1-6	5-9	10-12	13-15	16-20				X		
H-17	Homebound											

<sup>1/</sup> If no entry is shown, category is not applicable to the state<sup>2/</sup> Orthopedic

State Name: Wisconsin

Enrollments In Special Education

Data Period 1968-69

Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type				Waiting List
			Residential	Special Schools	Itinerant	Day Special and Itinerant	No Program Breakdown
H-1	Blind	Preschool		9			
		Elementary		51			
		Secondary		114			
H-2	Partially Sighted	Preschool				34	
		Elementary				93	
		Secondary				47	
H-4	Deaf	Preschool		9			Not Available
		Elementary		53			Not Available
		Secondary		129			Not Available
H-5	Hard of Hearing	Preschool				188	
		Elementary				418	
		Secondary				120	
H-7	Emotionally Disturbed	Preschool		63			
		Elementary		68			445
		Secondary		73			240
H-9	EMR	Preschool	2	47			272
		Elementary	22	36			564
		Secondary	90	77			769
H-10	TMR	Preschool	13	94			
		Elementary	72	107			
		Secondary	153	107			
		Ungraded					1774

Wisconsin

Wisconsin

[illegible]







Handicap Code	Handicap Category 1/	Education Level (Age Ranges)				Education Program			
		Preschool	Elementary	Secondary		Residential	Special Schools	Regular Classroom	No Program Breakdown
H-1	Blind							X	
H-2	Partially Sighted							X	
H-3	Visually Handicapped								
H-4	Deaf					X	X		X
H-5	Hard of Hearing								X
H-6	Hearing Handicapped								
H-7	Emotionally Disturbed								X
H-8	Mentally Retarded								
H-9	EMR					X	X		X
H-10	TMR					X	X		X
H-11	MR (Custodial, Severe, Institutional)					X	X		
H-12	Speech Handicaps								X
H-13	Speech and Hearing								
H-14	Special Learning Disabilities								
H-15	Brain Injured								
H-16	Physically Handicapped								X
H-17	Homebound								

1/ If no entry is shown, category is not applicable to the state

1/ If no entry is shown, category is not applicable to the state

State Name: Wyoming			Enrollments In Special Education		Data Period 1968-1969				Wyoming
Handicap Code	Handicap Category	Education Level	Enrollments By Special Education Program Type				Waiting List		
			Residen- tial	Special Schools	Regular Class- rooms	No Program Breakdown			
H-1	Blind	Preschool			3				
		Elementary			22				
		Secondary			34				
H-2	Partially Sighted	Elementary			34				
		Secondary			32				
		Unspecified				5			
H-4	Deaf	Preschool	4				AVAILABLE		
		Elementary	40						
		Secondary	6	14					
		Unspecified			4	7			
H-5	Hard of Hearing	Unspecified							
H-7	Emotionally Disturbed	Unspecified				89			
H-9	EMR	Unspecified	141	14		505	NOT		
H-10	TMR	Unspecified	182	28		73			
H-11	MR (Institutionalized)	Unspecified	244	26					
H-12	Speech Handicaps	Unspecified				15			
H-16	Physically Handicapped	Unspecified				19			

[illegible]



## APPENDIX 2

### COST ESTIMATES FOR IMPLEMENTATION AND MAINTENANCE OF INFORMATION FLOW

#### INTRODUCTION

2.1 As a result of the survey visit to each state, recommendations were made for the development and implementation of a special education information flow that would improve the quality and quantity of data available to each state special education agency, and would also provide the data elements necessary to support the manpower requirements projection model application. These recommended actions are presented in the individual state analysis reports contained in Part D, State Analysis Reports, of this Phase III Report.

2.2 The specific resources needed to implement the recommendations and maintain the system once it is established are contained in Section VIII, Resource Requirements, of each state analysis report. For the convenience of the Bureau of Education for the Handicapped, these resource requirements are summarized in this appendix.

#### DISCUSSION OF COST ESTIMATES

2.3 The resource requirements to implement and maintain the information flow are contained in individual tables for each state. The format and content of these tables are described in the following paragraphs.

##### Resource Category

2.4 The resources required are broken down by type of manpower and computer application. The special education staff category refers to those professionals responsible for the management and administration of the state

special education agency or its equivalent. The task for which they would be primarily responsible is coordination with the local districts and other state agencies to ensure their understanding of the data requirements and participation in the information flow process. This would include training local district and other agencies' personnel to fill out the new forms engendering support for the information system, and ensuring completeness and validity of reported data.

2.5 The form-designing tasks include the responsibility for creating forms that will permit the required data to be collected in an orderly and efficient manner. The forms must be easy to understand and convertible to computer input format. Many existing reporting formats have been prepared by those with little skill in designing good reporting forms.

2.6 The tasks of the systems analyst include data element evaluation, data source determination, systems analysis, preparation of systems specification, procedure preparation, and system validation.

2.7 The programmer is responsible for preparing the computer programs that will accept the formatted input data, process them according to specifications, and produce the required output formats.

2.8 Clerical personnel are responsible for the manual procedures necessary to the sorting, filing, extraction, and summarization of information where automated procedures have not been applied.

2.9 Key punch operators convert the field data to a format acceptable for input to the computer.

2.10 The computer resources have been subdivided into processing requirements and Manpower Requirements Projection Model requirements because the MRPM computer requires a minimum of 24,000-word storage capacity, whereas most information processing requirements do not require such a capacity.

#### Estimated Rate

2.11 The estimated rate is the salary that personnel could receive or, for the computer, the usage rate that would be charged to the special education agency for use of the machine. In some cases, no usage charge has been applied, because either there would be no charge to the special education agency or the rate was not known and therefore not assumed by the contractor.

2.12 With the exception of the special education staff, the salary rates applied were derived from information contained in an article in Business Automation Magazine.<sup>1/</sup> The rates used approximated the average rates for senior people in each category. Rates for special education personnel were not available; however, to represent the cost of this resource category in the cost estimate, a rate similar to that of the senior systems analyst was applied.

---

<sup>1/</sup> "EDP Salary Study-1969," Business Automation Magazine, July 1969.



### Implementation

2.13 The installation of an information system involves two major phases: the design and implementation phase, and the maintenance or operating phase. In the design and implementation phase, the system concept is developed, the system design formulated, computer programs are written, the system is tested and debugged, and the system validation is completed. At the conclusion of the phase, the system should be operational. Costs associated with this phase are one-time expenditures.

### Maintenance

2.14 This phase is concerned with ensuring that the system is operational and responsive to user requirements. This includes coordination of inputs, quality control, improvements, and preparation of special report specifications. Costs in this phase are anticipated annual expenditures.

### Type of Information System

2.15 The spaces immediately below the "Implementation" and "Maintenance" titles contain a very brief identification of the type(s) of system(s) recommended in the state analysis report. When alternative recommendations have been made, more than one system appears under each phase heading.

### Estimated Time

2.16 This column contains an estimate of the working time required by each resource to accomplish the implementation and maintenance of the information flow. The units of time are as indicated in the estimated rate column.

### Cost

2.17 The Cost column contains a multiplicative conversion of the Estimated Rate and Estimated Time columns. Values have been rounded off to the nearest five dollars.

# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Alabama	Resource Category	Estimated Rate \$	Implementation			Maintenance			Comments:
			Automated Est Time	Automated Cost \$	Manual Est Time	Automated Est Time	Manual Est Time	System Cost \$	
	Spec. Ed. Staff	1050 /mo.	6	6300	6	6300	2	2100	* For MRPM use, since the in-house computer does not have a FORTRAN compiler and the MRPM computer program is not written in PL/1, outside computer time must be leased
	Forms Designer	700 /mo.	.5	350	.5	350			
	System Analyst	1050 /mo.	.5	525			.1	100	
	Programmer	800 /mo.	1	800			.25	200	
	Clerical	500 /mo.			2	1000	2	1000	
	Keypunch	2.20 /hr.	200	440	4	10	200	440	
	Computer	Process /hr.	4		0		2	0	
	MRPM *	150 /hr.	.5	75	.5	75	.5	75	
TOTALS				\$8490		\$7735		\$2915	\$3175

State: Alaska	Resource Category	Estimated Rate \$	Implementation			Maintenance			Comments:
			Automated Est Time	Automated Cost \$	Manual Est Time	Automated Est Time	Manual Est Time	System Cost \$	
	Spec. Ed. Staff	1050 /mo.	2	2220			1	1060	* Computer: IBM 360/40, no usage cost assumed ** Included in System Analyst time
	Forms Designer	/mo.	**						
	System Analyst	1060 /mo.	1.5	1590			.25	265	
	Programmer	860 /mo.	1	860			.25	215	
	Clerical	/mo.							
	Keypunch	2.50 /hr.	60	150			50	125	
	Computer	Process * /hr.	5				3		
	MRPM *	/hr.	.5				.5		
TOTALS				\$4820				\$1665	

Alabama  
Alaska

Arizona  
Arkansas

COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL																
State: Arizona		Resource Category	Estimated Rate \$	Implementation				Maintenance				Comments:				
Automated Intradepartmental				Automated* Intradepartmental				Automated (Both)								
Est Time	Cost \$			Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$		Est Time	Cost \$		
Spec. Ed. Staff			1030 /mo.	2	2060	1	1030	.5	515			Processing Computer: Remington 9300 MRPM Computer to be rented, usage rate assumed  * In addition to the cost of the automated intradepart- mental system  ** Included in System Analyst time				
Forms Designer			/mo.	**												
System Analyst			1030 /mo.	2	2060	.5	515	.25	260							
Programmer			860 /mo.	1	860	.25	215	.25	215							
Clerical			/mo.													
Keypunch			2.30 /hr.	100	230			.90	200							
Process			40 /hr.	6	240			4	160							
MRPM			150 /hr.	.5	75			.5	75							
				TOTALS				\$5525 \$1760 \$1425								
State: Arkansas		Resource Category	Estimated Rate \$	Implementation				Maintenance				Comments:				
Automated				Manual				Automated					Manual			
Est Time	Cost \$			Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$		Est Time	Cost \$		
Spec. Ed. Staff			990 /mo.	2	1980	2	1980	.5	495	.5	495	Processing Computer: IBM 360/25 MRPM Computer : minimum 24K word storage required  * Included in System Analyst time				
Forms Designer			/mo.	*												
System Analyst			990 /mo.	1.5	1485	1	990	.25	225	.25	225					
Programmer			840 /mo.	1	840			.25	210							
Clerical			400 /mo.			1	400			2	800					
Keypunch			2.30 /hr.	144	330	4	10	140	330							
Process			100 /hr.	4	400			2	200							
MRPM			100 /hr.	.5	50	.5	50	.5	50	.5	50					
				TOTALS				\$4485 \$3430 \$1510 \$1570								

# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: California		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Modif of Existing Auto-mated Proc		Modif of Existing Auto-mated Proc		Modif of Existing Auto-mated Proc		Modif of Existing Auto-mated Proc		
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1060 /mo.	4	4240			2	2120			*No computer usage charge assumed
Frms Designer	700 /mo.	1	700							
System Analyst	1060 /mo.	1	1060			.25	265			
Programmer	860 /mo.	2	1720			.25	215			
Clerical	/mo.									
Keypunch	2.50 /hr.	380	950			360	900			
Computer	Process	*	/hr.	4				2		
	MRPM	*	/hr.	.5				.5		
TOTALS			\$8670				\$3500			

State: Colorado		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated		Automated		Automated		Automated		
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1030 /mo.	2	2060			1	1030			* Computer: IBM 360/50 No computer usage charge assumed
Forms Designer	700 /mo.	.5	350							
System Analyst	1030 /mo.	2	2060			.25	250			
Programmer	860 /mo.	1	860			.25	215			
Clerical	/mo.									
Keypunch	2.30 /hr.	200	460			180	435			
Computer	Process *	5				3				
	MRPM *	.5				.5				
TOTALS			\$5790				\$1930			

California  
Colorado

Connecticut  
Delaware

COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Connecticut		Implementation			Maintenance			Comments:
Resource Category	Estimated Rate \$	Automated		Est Time	Automated		Est Cost \$	
Spec. Ed. Staff	1060 /mo.	5	5300		2	2120		* Computer time must be leased
Forms Designer	700 /mo.	1	700					
System Analyst	1060 /mo.	3	3180		.25	265		
Programmer	860 /mo.	1.5	1290		.25	215		
Clerical	/mo.							
Keypunch	5.00 /hr.	180	900		170	850		
Computer* Process	100 /hr.	6	600		4	400		
MRPM	150 /hr.	.5	75		.5	75		
TOTALS		\$12105			\$5925			

State: Delaware		Implementation			Maintenance			Comments:
Resource Category	Estimated Rate \$	Automated		Est Time	Automated		Est Cost \$	
Spec. Ed. Staff	1040 /mo.	2	2080		1	1040		Processing Computer is a 1401 Model G * MRPM Computer to be rented
Forms Designer	700 /mo.	1	700					
System Analyst	1040 /mo.	2	2080		.25	260		
Programmer	870 /mo.	1.5	1305		.25	220		
Clerical	/mo.							
Keypunch	2.50 /hr.	30	75		25	65		
Computer Process	0 /hr.	4			2			
MRPM*	150 /hr.	.5	75		.5	75		
TOTALS		\$6315			\$1660			

# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

Florida  
Georgia

Comments:  
  
Computer: IBM 360/40  
\* No computer usage charge assumed

State: Florida	Resource Category	Estimated Rate \$	Implementation			Maintenance		
			Auto. Data Summary System			Auto. Data Summary System		
			Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$
Spec. Ed. Staff		1000 /mo.	2	2000			1	1000
Forms Designer		700 /mo.	1	700				
System Analyst		1000 /mo.	1	1000				
Programmer		870 /mo.	1	870			.25	200
Clerical		/mo.						
Keypunch		2.30 /hr.	90	210			80	185
Computer	Process	* /hr.	4				2	
	MRPM	* /hr.	.5				.5	
TOTALS				\$4780				\$1385

Comments:  
  
Computer: IBM 360

State: Georgia	Resource Category	Estimated Rate \$	Implementation			Maintenance		
			Automated			Automated		
			Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$
Spec. Ed. Staff		1000 /mo.	2	2000			1	1000
Forms Designer		700 /mo.	.5	350				
System Analyst		1000 /mo.	3	3000			.25	250
Programmer		870 /mo.	1.5	1300			.1	90
Clerical		/mo.						
Keypunch		2.30 /hr.	180	415			160	365
Computer	Process	112 /hr.	5	560			3	336
	MRPM	112 /hr.	.5	55			.5	55
TOTALS				\$7680				\$2096

Hawaii  
Idaho

COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Hawaii		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Data Sum- mary System		Pupil Acctg System		Data Sum- mary System		Pupil Acctg System		
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1060 /mo.	1	1060	2	2120	.5	530	1	1060	* No computer usage charge assumed
Forms Designer	800 /mo.	.75	600	1	800					
System Analyst	1060 /mo.			1	1060			.1	105	
Programmer	860 /mo.			1	860			.25	215	
Clerical	500 /mo.	.5	250			.5	250			
Keypunch	2.50 /hr.	4	10	100	250	.1	10	20	50	
Computer	Process	1		4		.5		1		
	MRPM	.5		.5		.5		.5		
TOTALS			\$1920		\$4290		\$790		\$1430	

State: Idaho		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated Est Time	Cost \$	Est Time	Cost \$	Automated Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1030 mo.	1.5	1030			.25	260			* Computer: IBM 360/40, no usage charge assumed ** Included in System Analyst time
Forms Designer	/mo.	**								
System Analyst	1030 /mo.	1.5	1545			.25	260			
Programmer	860 /mo.	1	860			.25	215			
Clerical	/mo.									
Keypunch	2.30 /hr.	100	230			90	210			
Computer	Process * /hr. MRPM * /hr.	4				2				
TOTALS			\$3665				\$945			

# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Illinois		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated Est Time	Automated Cost \$	Est Time	Cost \$	Automated Est Time	Automated Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1040 mo.	3	3120			1.5	1560			Computer: Honeywell 1250 * Computer usage charge not assumed
Forms Designer	700/mo.	.5	350							
System Analyst	1040/mo.	2.5	2590			.25	260			
Programmer	850/mo.	1	850			.25	215			
Clerical	/mo.									
Keypunch	2.50/hr.	100	250			90	225			
Computer Process	* /hr.	7				5				
MRPM	* /hr.	.5				.5				
TOTALS			\$7160				\$2260			

State: Indiana		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated Est Time	Automated Cost \$	Est Time	Cost \$	Automated Est Time	Automated Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1040 mo.	2	2080			.5	520			*Computer - IBM360/50 --no computer usage cost assumed **Included in System Analyst time
Forms Designer	/mo.	**								
System Analyst	1040/mo.	2	2080			.25	260			
Programmer	850/mo.	1	850			.25	210			
Clerical	/mo.									
Keypunch	2.50/hr.	200	500			180	450			
Computer Process	* /hr.	6				4				
MRPM	* /hr.	.5				.5				
TOTALS			\$5510				\$1440			

Illinois  
Indiana



# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Iowa		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated				Automated				
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1020 mo.	3	3060			1.5	1530			Computers: IBM 1401 IBM 360/40 *Computer usage charge not assumed
Forms Designer	700/mo.	.5	350							
System Analyst	1020/mo.	2	2040			.25	255			
Programmer	820/mo.	1	820			.25	205			
Clerical	500/mo.	.5	250			.5	250			
Keypunch	2.20/hr.	140	310			130	290			
Computer	Process	5				4				
	MRPM	.5				.5				
TOTALS			\$6830				\$2530			

State: Kansas		Estimated Rate \$	Implementation				Maintenance				Comments:
Resource Category	Fully Est Time		Automated Cost \$	Partially Automated Est Time	Partially Automated Cost \$	Fully Est Time	Automated Cost \$	Partially Automated Est Time	Partially Automated Cost \$		
Spec. Ed. Staff	2	2040	2	2040	1	1020	1	1020	1	1020	Computer: RCA Spectra 70
Forms Designer	1	700	1	700							
System Analyst	2.5	2550	1	1020	.25	255	.1	100			
Programmer	1	820	.5	410	.25	205	.1	80			
Clerical			1	500			1	500			
Keypunch	110	24030	30	65	100	220	30	65			
Computer	5	385	3	230	4	310	2	155			
	.5	40	.5	40	.5	40	.5	40			
TOTALS			\$6775	\$5005	\$2050	\$1960					

Iowa  
Kansas

Kentucky  
Louisiana

COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Kentucky		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Data Sum- mary Sys.				Data Sum- mary Sys.				
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1050 mo.	4	4200			2	2100			* No computer usage charge assumed
Forms Designer	700/mo.	1.25	875							
System Analyst	1050/mo.	.5	525			.1	105			
Programmer	800/mo.	1	800			.25	200			
Clerical	/mo.									
Keypunch	2.20/hr.	240	530			230	510			
Computer	Process	3				2				
	MRPM					.5				
TOTALS			\$6055				\$2915			

State: Louisiana		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated				Automated				
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	990 mo.	3	2970			1	990			Computer must be purchased or leased * Does not include computer usage cost estimate
Forms Designer	700/mo.	1	700							
System Analyst	990/mo.	3	2970			.25	250			
Programmer	840/mo.	1	840			.25	210			
Clerical	/mo.									
Keypunch	2.30/hr.	80	185			70	160			
Computer	Process	3				2				
	MRPM:	.5				.5				
TOTALS			\$7665				\$1610			

# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Maine		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated				Automated				
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1050 mo.	1	1050			.25	260			Computer: IBM 360/40  * MRPM Implementation not recommended  ** Included in Systems Design Time
Forms Designer	/mo.	**								
System Analyst	1050/mo.	1.5	1575			.25	260			
Programmer	850/mo.	.5	425			.25	215			
Clerical	/mo.									
Keypunch	2.30/hr.	50	115			40	90			
Computer	Process	4	320			2	160			
	MRPM	*	/hr.							
TOTALS			\$3485				\$985			

State: Maryland		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated Intradepartmental		Automated* Interdepartmental		Automated (both)		Est Time	Cost \$	
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$			
Spec. Ed. Staff	1040 mo.	3	3120	.5	520	.5	520			Process Computer-IBM 360/20 MRPM Computer-IBM 1460 * In addition to Intradepartmental system. ** Included in System Analyst time
Forms Designer	/mo.	**								
System Analyst	1040/mo.	2	2080	.5	520	.25	260			
Programmer	870/mo.	1.5	1300	.25	220	.25	220			
Clerical	/mo.									
Keypunch	2.50/hr.	40	100			30	75			
Computer	Process	4	80			2	40			
	MRPM	.5	30			.5	30			
TOTALS			\$6710		\$1260		\$1145			

Maine  
Maryland

# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Massachusetts		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated Intradepartmental		Automated * Interdepartmental		Automated (both)				
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1060 mo.	3	3180	2	2120	.5	530			Process Computer-Honeywell 200 MRPM computer to be rented  * This is in addition to the cost of the intradepartmental system  ** Included in System Analyst time
Forms Designer	/mo.	**								
System Analyst	1060/mo.	4	4240	1.5	1590	.5	530			
Programmer	860/mo.	2	1720	.5	430	.5	430			
Clerical	500/mo.	1	500			.5	250			
Keypunch	2.50/hr.	400	1000			400	1000			
Computer	Process	4	200			2	100			
	MRPM	.5	50			.5	50			
TOTALS			\$10890		\$4140		\$2890			

State: Michigan		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated Intradepartmental		Automated* Interdepartmental		Automated (Both)		Est Time	Cost \$	
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$			
Spec. Ed. Staff	1020 /mo.	1	1020	.5	510	.5	510			* This is in addition to the cost of the Intradepartmental System **Included in System Analyst time Computer: CDC 6600
Forms Designer	/mo.	**								
System Analyst	1020 /mo.	2	2040	.5	510	.5	510			
Programmer	850 /mo.	1	850	.5	425	.25	210			
Clerical	/mo.									
Keypunch	2.50 /hr.	100	250			100	250			
Computer	Process	100 /hr.	2	200	1	100	200			
	MRPM	100 /hr.	.5	50		.5	50			
TOTALS			\$4410		\$1545		\$1730			

Massachusetts  
Michigan

Minnesota  
Mississippi

COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL													
State: Minnesota			Implementation				Maintenance				Comments:		
Resource Category	Estimated Rate \$		Automated		Cost \$	Est Time	Automated		Cost \$	Est Time	Cost \$		
			Est Time	Cost \$			Est Time	Cost \$					
Spec. Ed. Staff	1020 /mo.		2	2040			1	1020				* No computer usage cost assumed	
Forms Designer	700 /mo.		.5	350									
System Analyst	1020 /mo.		2	2040			.25	255					
Programmer	820 /mo.		1	820			.1	80					
Clerical	/mo.												
Keypunch	2.20 /hr.		410	900			400	880					
Computer	Process		6				4						
	MRPM		.5				.5						
TOTALS				\$6150						\$2235			
Comments:													
* Keypunching cost is included in computer rental cost.													
Computer: Honeywell 200													
State: Mississippi			Implementation				Maintenance				Comments:		
Resource Category	Estimated Rate \$		Automated		Cost \$	Est Time	Automated		Cost \$	Est Time	Cost \$		
			Est Time	Cost \$			Est Time	Cost \$					
Spec. Ed. Staff	1050 /mo.		3	3150			1	1050				* Keypunching cost is included in computer rental cost. Computer: Honeywell 200	
Forms Designer	700 /mo.		1	700									
System Analyst	1050 /mo.		3	3150			.25	260					
Programmer	800 /mo.		1	800			.1	80					
Clerical	/mo.												
Keypunch	/hr.		150	*			140	*					
Computer	Process		3	349			2	233					
	MRPM		.5	59			.5	59					
TOTALS				\$8208						\$1662			
Comments:													
* Keypunching cost is included in computer rental cost.													
Computer: Honeywell 200													

Missouri  
Montana

COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Missouri		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated Roster System		Tabulation System		Automated Roster System		Tabulation System		
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1020 /mo.	3	3060	2	2040	1	1020	1	1020	*Computer Time will have to be leased  Computer: IBM 360/30
Forms Designer	700 /mo.	.25	175	.5	350					
System Analyst	1020 /mo.	3	3060	1.5	1530	.5	510	.25	255	
Programmer	820 /mo.	1.5	1250	(1)	(820)	.25	205	(.1)	(80)	
Clerical	500 /mo.			3	1500			3	1500	
Keypunch	2.20 /hr.	180	400	(70)	(155)	20	45	(60)	(130)	
Computer	Process	0 /hr.		(4)		4		(3)		
	MRPM*	150 /hr.	.5	75	.5	75	.5	75	.5	75
TOTALS			\$8020		Manual 5495 Auto. (6470)		\$1855	Manual 2850 Auto. (3060)		

State: Montana		Implementation				Maintenance				Comments: * Included in System Analyst time  ** MRPM not recommended for near term implementation computer is a Honeywell 200
Resource Category	Estimated Rate \$	Automated		Automated		Automated		Automated		
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1030 /mo.	1	1030			.5	515			
Forms Designer	/mo.	*								
System Analyst	1030 /mo.	1.5	1545			.25	260			
Programmer	860 /mo.	.5	430			.25	215			
Clerical	400 /mo.	.5	200			.5	200			
Keypunch	2.30 /hr.	100	230			100	230			
Computer	Process	4	100			2	100			
	MRPM**									
TOTALS			\$3535				\$1520			

Nebraska  
Nevada

COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Nebraska		Estimated Rate \$	Implementation				Maintenance				Comments:
			Automated		Manual		Automated		Manual		
			Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
	Spec. Ed. Staff	1020 /mo.	2	2040	2	2040	1	1020	1	1020	* Time leased from Department of Administrative Services; rate assumed
	Forms Designer	700 /mo.	1	700	1	700					
	System Analyst	1020 /mo.	2	2040	1	1020	.25	255	.1	100	
	Programmer	820 /mo.	1	820			.1	80			
	Clerical	500 /mo.			2	1000			2	1000	
	Keypunch	2.20 /hr.	100	220			90	200			
Computer*	Process	150 /hr.	4	600			3	450			
	MRPM	150 /hr.	.5	75	.5	75	.5	75	.5	75	
TOTALS				\$6495		\$4835		\$2080		\$2195	

State: Nevada		Implementation				Maintenance				Comments: Computer: IBM 360/50
Resource Category	Estimated Rate \$	Automated		Manual		Automated		Manual		
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1030 /mo.	4	4120			1	1030			
Forms Designer	700 /mo.	1	700							
System Analyst	1030 /mo.	3	3090			.25	260			
Programmer	860 /mo.	1	860			.1	90			
Clerical	/mo.									
Keypunch	2.30 /hr.	30	70			22	50			
Computer	Process	2	130			1	65			
	MRPM	.5	35			.5	35			
TOTALS		\$9005				\$1530				



# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: New Hampshire		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated EDP		Automated EAM		Automated EDP		Automated EAM		
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1050 /mo.	2	2100	1	1050	1	1050	.5	525	* Currently using EAM equipment, EDP computer charge not yet established ** No computer usage charge assumed
Forms Designer	700 /mo.	.5	350							
System Analyst	1050 /mo.	2	2100	1	1050	.25	260	.25	260	
Programmer	850 /mo.	.5	425							
Clerical	500 /mo.			.5	250			.5	250	
Keypunch	2.30 /hr.	40	90	40	90	30	70	40	90	
Computer	Process*	**	/hr.	3						
	MRPM	**	/hr.	.5		.5		.5		
TOTALS			\$5065		\$2440		\$1380		\$1125	

State: New Jersey		Implementation				Maintenance				Comments: Estimate is independent of the Educational Management Information System under development
Resource Category	Estimated Rate \$	Automated		Cost \$	Automated		Cost \$			
		Est Time	Cost \$		Est Time	Cost \$				
Spec. Ed. Staff	1060 /mo.	4	4240			2	2120		* Computer charge unknown; computers are 360/models 40 and 50	
Forms Designer	700 /mo.	1	700							
System Analyst	1060 /mo.	4	4240			.25	265			
Programmer	870 /mo.	1.5	1300			.1	90			
Clerical	/mo.									
Keypunch	2.50 /hr.	720	1800			700	1750		** Does not include a charge for computer usage	
Computer*	Process	**	/hr.	6		4				
	MRPM	**	/hr.	.5		.5				
TOTALS			**\$12280				**\$4225			

New Hampshire  
New Jersey



# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: New Mexico		Implementation				Maintenance				Comments: Computers: IBM 1401 H for processing; IBM 360/50 for MRPM
Resource Category	Estimated Rate \$	Auto. Data Summ. Syst.		Auto. Data Summ. Syst.		Auto. Data Summ. Syst.		Auto. Data Summ. Syst.		
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1030 /mo.	3	3090			1	1030			
Forms Designer	700 /mo.	1	700							
System Analyst	1030 /mo.	.5	515							
Programmer	860. /mo.	.5	430			.1	90			
Clerical	/mo.									
Keypunch	2.30 /hr.	90	210			80	185			
Computer	Process	5				4				
	MRPM	90 /hr.	.5	45		.5	45			
TOTALS			\$4990				\$1350			

State: New York		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated		Automated		Automated		Automated		
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1060 /mo.	2	2120			1	1060			*No computer usage charge assumed  ** Most input documents are in machine readable formats, i.e., mark sense
Forms Designer	700 /mo.	.5	350							
System Analyst	1060 /mo.	2	2120			.25	265			
Programmer	870 /mo.	1	870			.1	90			
Clerical	/mo.									
Keypunch*	2.50 /hr.	100	250			90	225			
Computer	Process	*	/hr.	15				10		
	MRPM	*	/hr.	.5				.5		
TOTALS			\$5710						\$1630	

New Mexico  
New York

# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: North Carolina		Implementation				Maintenance				Comments: Data Processing Equipment: IBM 407  MRPM computer capacity will have to be obtained elsewhere  * No computer charge assumed
Resource Category	Estimated Rate \$	Automated EAM		Cost \$	Automated EAM		Cost \$			
		Est Time	Cost \$		Est Time	Cost \$				
Spec. Ed. Staff	1000 /mo.	2	2000		1	1000				
Forms Designer	700 /mo.	.5	350							
System Analyst	1000 /mo.	2	2000		.25	250				
Programmer	870 /mo.	.5	435							
Clerical	400 /mo.	.5	200		.5	200				
Keypunch	2.30 /hr.	125	290		120	275				
Computer	Process	6			4					
	MRPM	.5			.5					
TOTALS			\$5275			\$1725				

State: North Dakota		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated		Manual		Automated		Manual		
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1020 /mo.	2	2040	1	1020	.25	255	.5	510	Computer: RCA Spectra 45  * Included in Systems Analyst time  ** No computer usage charge assumed
Forms Designer	/mo.	*		*						
System Analyst	1020 /mo.	3	3060	3	3060	.25	255			
Programmer	820 /mo.	1	820	[1]	[820]	.25	205			
Clerical	400 /mo.	.5	200	1.5	600	.5	200	[1.5]	[800]	
Keypunch	2.20 /hr.	30	65	25	55	25	55	25	55	
Computer	Process	4				2				
	MRPM	.5				.5				
TOTALS			\$6185	Man. 4/35 [5555]		\$970	Man. 5/165 [565]			

North Carolina  
North Dakota

Ohio  
Oklahoma

COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL											
State: Ohio			Implementation				Maintenance				Comments:  Computer - Honeywell 200 (65K)  * No computer usage charges have been assumed
Resource Category	Estimated Rate \$	Automated		Cost \$	Automated		Cost \$	Automated		Cost \$	
		Est Time	Cost \$		Est Time	Cost \$		Est Time	Cost \$		
Spec. Ed. Staff	1040 /mo.	3	3120			1	1040				
Forms Designer	700 /mo.	1	700								
System Analyst	1040 /mo.	4	4160			.25	260				
Programmer	850 /mo.	1.5	1275			.25	210				
Clerical	/mo.										
Keypunch	2.50 /hr.	650	1625			640	1600				
Computer	Process	* /hr.	6			4					
	MRPM	* /hr.	.5			.5					
TOTALS			\$10880				\$3110				
Comments:  Computer: RCA Spectra 70/35  * No computer use charge assumed											
State: Oklahoma			Implementation				Maintenance				Comments:  Computer: RCA Spectra 70/35  * No computer use charge assumed
Resource Category	Estimated Rate \$	Auto. Data Mod. Pupil Summ. Syst. Acct. Syst.		Cost \$	Auto. Data Mod. Pupil Summ. Syst. Acct. Syst.		Cost \$	Auto. Data Mod. Pupil Summ. Syst. Acct. Syst.		Cost \$	
		Est Time	Cost \$		Est Time	Cost \$		Est Time	Cost \$		
Spec. Ed. Staff	990 /mo.	3	2970	4	3960	1	990	1	990		
Forms Designer	700 /mo.	.75	525	1	700						
System Analyst	990 /mo.	.5	495	2	1980			.1	100		
Programmer	840 /mo.	.5	420	1.5	1260	.1	85	.25	210		
Clerical	/mo.										
Keypunch	2.30 /hr.	200	460	350	805	190	440	60	140		
Computer	Process	* /hr.	3			10		4			
	MRPM	* /hr.	.5			.5		.5			
TOTALS			\$4870		\$8705		\$1515		\$1440		

# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Oregon		Implementation				Maintenance				Comments:  Computer: IBM 360/40
Resource Category	Estimated Rate \$	Mod. Pupil Acct. Syst.		Mod. Pupil Acct. Syst.		Mod. Pupil Acct. Syst.		Mod. Pupil Acct. Syst.		
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1060 /mo.	4	4240			1	1060			
Forms Designer	700 /mo.	1	700							
System Analyst	1060 /mo.	2	2120			.1	100			
Programmer	860 /mo.	1.5	1290			.25	215			
Clerical	/mo.									
Keypunch	2.50 /hr.	200	500			50	125			
Computer	Process	10	750			4	325			
	MRPM	.5	40			.5	40			
TOTALS			\$9640				\$1865			

State: Pennsylvania		Implementation				Maintenance				Comments:	
Resource Category	Estimated Rate \$	Automated		Automated		Automated		Automated			
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$		
Spec. Ed. Staff	1060 mo.	2.5	2650			.5	530			* No computer usage charge assumed	
Forms Designer	700 /mo.	1	700								
System Analyst	1060 /mo.	2	2120			.25	285				
Programmer	870 /mo.	1	870			.25	220				
Clerical	/mo.										
Keypunch	2.50/hr.	200	500			190	475				
Computer	Process	6				4					
	MRPM	.5				.5					
TOTALS			\$6840				\$1510				

Oregon  
Pennsylvania

Rhode Island  
South Carolina

COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL										
State: Rhode Island			Implementation			Maintenance			Comments:	
Resource Category	Estimated Rate \$		Automated		Cost \$	Automated		Cost \$	* Included in System Analyst time	** Rented computer
			Est Time	Cost \$		Est Time	Cost \$			
Spec. Ed. Staff	1060 /mo.		1		1060		.5	530		
Forms Designer	/mo.		*							
System Analyst	1060 /mo.		2		2120		.5	530		
Programmer	860 /mo.		2		1720		.25	215		
Clerical	/mo.									
Keypunch	2.50/hr.		35		90		30	75		
Computer **	Process		4		406		1	100		
	MRPM		.5		50		.5	50		
TOTALS					\$5440			\$1500		
State: South Carolina			Implementation			Maintenance			Comments:	
Resource Category	Estimated Rate \$		Automated		Cost \$	Automated		Cost \$	Computer IBM 360/40	* No computer usage charge assumed
			Est Time	Cost \$		Est Time	Cost \$			
Spec. Ed. Staff	1000 /mo.		2.5		2500		.5	500		
Forms Designer	700 /mo.		.5		350					
System Analyst	1000 /mo.		2.5		2500		.25	250		
Programmer	870 /mo.		1		870		.25	220		
Clerical	/mo.									
Keypunch	2.30/hr.		85		200		80	185		
Computer	Process		4				2			
	MRPM		.5				.5			
TOTALS					\$6420			\$1155		

# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: South Dakota		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated				Automated				
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1020 mo.	2	2040			.25	255			Computer IBM 360/40 * Included in System Analyst time ** No computer usage charges assumed.
Forms Designer	/mo.	*								
System Analyst	1020 /mo.	3	3060			.25	255			
Programmer	820 /mo.	1	820			.5	205			
Clerical	400 /mo.	.5	200			.5	200			
Keypunch	2.20/hr.	20	45			15	35			
Computer	Process	4				2				
	MRPM	.5				.5				
TOTALS			\$6165				\$950			

State: Tennessee		Implementation						Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated Intradepartmental		Automated Interdepartmental		Automated (both)		Automated (both)		Cost \$	Time	
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$			
Spec. Ed. Staff	1050 /mo.	2	2100	1	1050			.5	525			** Included in System Analyst time
Forms Designer	/mo.	**										
System Analyst	1050 /mo.	3	3150	1	1050			.5	260			*** No computer usage charge assumed
Programmer	800 /mo.	1	800	.25	200			.25	200			
Clerical	400 /mo.	1	400					.5	200			
Keypunch	2.20/hr.	100	220					100	220			
Computer	Process	4						4				
	MRPM	.5						.5				
TOTALS			\$6670		\$2300				\$1405			

South Dakota  
Tennessee

COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL											
State: Texas		Resource Category	Estimated Rate \$	Implementation			Maintenance			Comments:	
				Automated Data Summary	Modified pu-System	Automated Data Summary	Modified pu-System	Automated Data Summary	Modified pu-System		
				Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$		Est Time
Spec. Ed. Staff			1050 /mo.	3	3150	4	4200	1	1050	1	1050
Forms Designer			700 /mo.	1	700	1	700				
System Analyst			1050 /mo.	1	1050	2	2100			.1	100
Programmer			860 /mo.	1	860	1.5	1290	.1	80	.25	200
Clerical			/mo.								
Keypunch			7.30/hr.	1400	3220	3400	7820	1390	3200	80	1565
Computer	Process		* /hr.	10		20		8		8	
	MRPM		250/hr.	.5	125	.5	125	.5	125	.5	125
TOTALS					\$9105		\$16235		\$4455		\$3040
Computers: UNIVAC 1050 for processing; IBM 360/50 for MRPM											
* No computer usage charges assumed											

State: Utah			Implementation		Maintenance		Comments:
Resource Category	Estimated Rate \$	Automated		Automated		Cost \$	
		Est Time	Cost \$	Est Time	Cost \$		
Spec. Ed. Staff	1030 mc.	2	2060		.5	515	* Included in System Analyst time  Computer: RCA Spectra 70/45
Forms Designer	/mo.	*					
System Analyst	1030 /mo.	.2	2060		.25	260	
Programmer	860 /mo.	1	860		.25	215	
Clerical	400 /mo.	1	400		.5	200	
Keypunch	2.30/hr.	40	90		40	90	
Computer	Process	4	400		4	400	
	MRPM		.5	50		.5	
TOTALS			\$5960			\$1730	

Texas  
Utah



# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Vermont		Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated		Manual		Automated		Manual		
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	
Spec. Ed. Staff	1050 mo.	2	2100	1	1050	.5	525	.5	525	* Included in Systems Analyst time
Forms Designer	/mo.	*								
System Analyst	1050/mo.	3.5	3675	2	2100	.5	525	.25	260	
Programmer	850/mo.	1	850			.25	210			
Clerical	400/mo.			1	400			1	400	
Keypunch	2.30/hr.	30	70			.25	65			
Computer	Process	4	340			2				
	MRPM	.5	45	.5	45	.5	45	.5	45	
TOTALS			\$7080		\$3595		\$1370		\$1230	

State: Virginia

Resource Category

Estimated Rate \$

Spec. Ed. Staff

1000 /mo.

Forms Designer

700 /mo.

System Analyst

1000 /mo.

Programmer

870 /mo.

Clerical

/mo.

Keypunch

2.30 /hr.

Computer

\*\*\* /hr.

Process MRPM

150 /hr.

TOTALS

Implementation

Auto. Data\*\* Summary System Input

Est Time Cost \$

2 2000 3 3000 1 1000

1 700 1 700

.5 500 .5 500

.5 435 .5 435

/mo.

140 320 150 345

3 5

.5 75 .5 75

\$4035 \$5050

Maintenance

Auto. Data\*\* Summary System Input

Est Time Cost \$

1 1000 1 1000

.1 85 .1 85

130 300 140 320

2 4

.5 75 .5 75

\$1460 \$1480

Comments:

Computers: IBM 360/Model 25; undetermined for MRPM

\* Input: Division summaries

\*\* Input: Teacher/class reports.

\*\*\* No computer usage charge assumed for processing values shown for MRPM represent estimated average rental cost

Vermont

Virginia

Vermont  
Virginia



Washington  
West Virginia

COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL												
State: Washington			Estimated Rate \$	Implementation			Maintenance **			Comments:		
Resource Category				Automated		Cost \$	Automated		Cost \$			
			Est Time	Cost \$	Est Time		Cost \$	Est Time		Cost \$		
Spec. Ed. Staff		1060 mo.	.5	530		**				* Included in System Analyst time  ** An automated system is already in effect. No additional cost anticipated		
Forms Designer		/mo.	*									
System Analyst		1060/mo.	1	1060		**						
Programmer		860/mo.	1	860		**						
Clerical		/mo.										
Keypunch		2.50/hr.	80	200		80	200					
Computer	Process	100/hr.	2	200		**	**					
	MRPM	100/hr.	.5	50		.5	50					
TOTALS				\$2900				\$250				
State: West Virginia			Estimated Rate \$	Implementation			Maintenance				Comments:	
Resource Category				Automated		Cost \$	Automated		Cost \$			
			Est Time	Cost \$	Est Time		Cost \$	Est Time		Cost \$		
Spec. Ed. Staff		1000 mo.	2	2000		.5	500			Process Computer — Burroughs 3000  MRPM Computer — IBM 360/50 or IBM 7040  * No computer usage charge assumed		
Forms Designer		700/mo.	.5	350								
System Analyst		1000/mo.	4	4000		.25	250					
Programmer		870/mo.	1	870		.25	220					
Clerical		/mo.										
Keypunch		2.30/hr.	45	105		40	90					
Computer	Process	* /hr.	4			2.						
	MRPM	* /hr.	.5			.5						
TOTALS				\$7325				\$1060				

# COST ESTIMATE FOR SPECIAL EDUCATION DATA DEVELOPMENT AND MRPM APPLICATION AT STATE LEVEL

State: Wisconsin			Implementation				Maintenance				Comments:
Resource Category	Estimated Rate \$	Automated				Automated					
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$		
Spec. Ed. Staff	1040 mo.	2.5	2600			1	1040			* Included in Systems Analysts time Processing Computer -- IBM 360/30 MRPM Computer capability (32K word storage) required ** No computer usage charge assumed	
Forms Designer	/mo.	*									
System Analyst	1040/mo.	2.5	2600			.25	260				
Programmer	850/mo.	1	850			.25	210				
Clerical	/mo.										
Keypunch	2.50/hr.	40	100			36	90				
Computer	Process	** /hr.	6			4					
	MRPM	** /hr.	.5			.5					
	TOTALS			\$6150				\$1600			

State: Wyoming			Implementation				Maintenance				Comments:  Process Computer: IBM 360/30  MRPM computer requires 32K word storage  * No computer usage charge assumed
Resource Category	Estimated Rate \$	Automated				Automated					
		Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$	Est Time	Cost \$		
Spec. Ed. Staff	1030 mo.	2.5	2575			1	1030				
Forms Designer	700/mo.	.5	350								
System Analyst	1030/mo.	2	2060			.25	260				
Programmer	860/mo.	.5	430			.25	215				
Clerical	/mo.										
Keypunch	2.30/hr.	25	60			20	45				
Computer	Process	* /hr.	4			2					
	MRPM	* /hr.	.5			.5					
TOTALS			\$5475				\$1550				

Wisconsin  
Wyoming